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VAN SWIETEN'S
COMMENTARIES
ABRIDGED.

By RALPH SCHOMBERG, M. D.

Fellow of the Society of ANTIQUARIES.

VOL. II.

Quidquid præcipies, esto brevis ; ut cito dicta
Percipiant animi dociles, teneantque fideles.

HORAT. de Arte Poeticâ.

L O N D O N :

Printed for W. JOHNSTON, in LUDGATE-STREET.

MDCCLXVIII.

*Presented from the Author to the Librarian
16th June 1768.*

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Society of Antiquaries*

I Now present the Reader with a continuation of the Abridgment of the fourth volume of VAN SWIETEN'S Commentaries—as the number of observations, and the quantity of materials collected from a constant perusal of the best medical writers, made it impossible for one volume to contain the remaining part of the work; the very learned *Commentator* assures us that a fifth volume will positively be the last—when this makes its appearance, I shall endeavor, as soon as possible, to finish the whole of the Abridgment.

It

It has been observed, that I had omitted inserting the *Aphorisms*—this I did designedly; and for two reasons: first, because they would have swelled the book to a much larger size, than I imagined would be convenient; and secondly, because I seldom or ever through the whole course of the Abridgment treat of every particular as it stands related in the Aphorisms.

Of a PHTHISIS PULMONALIS.

THREE things are requisite to constitute a *phtthisis pulmonalis*.

1st. A slow wasting of the whole body: 2. The cause of this consumption must arise from a depravity of the humors in consequence of a putrid cacochymia: 3. The seat of the disease must be in the lungs.

The cure of a wound in the lungs, is often much more tedious and difficult than in any external part of the body, for the air cannot be excluded, and the lungs, upon account of their office in respiration, so essentially necessary to life, can never be at rest, but in a constant and uninterrupted motion—physicians therefore very judi-

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ously recommend rest in an *hæmoptysis* or spitting of blood, forbid their patient's speaking, prescribe the mildest nourishment, and caution against every passion of the mind, in order that the lungs may be as little disturbed as possible; nor is this intended so much to prevent the return of the *hæmoptysis*, as that the ruptured vessel may be more speedily closed and consolidated.

Another reason why an ulcer of the lungs is often the consequence of an *hæmoptysis* may be accounted for, from the formation of this viscus: if the lungs be blown up and dried, and then cut asunder, they appear entirely cellular, not only because the extremities of the bronchia terminate in hollow membranes, but there plainly appears a cellular membrane, which fills up the intermediate spaces between these small vesicles in which the bronchia terminate, as we may very readily prove.

prove by microscopical observation, after the vessels of the lungs have been properly injected; now, if it happen that these vessels being ruptured, the blood is thrown upon this cellular membrane, this extravasated stagnating blood growing putrid and acrimonious may produce a suppuration and an ulcer of the lungs: for the extravasated blood, which obstructs the air vessels of the lungs, may easily be thrown up by a cough, but that blood which is collected in the cellular membrane of this viscus, cannot so readily find a passage this way till it has corroded the nearest bronchia.—This fully explains the aphorism in *Hippocrates*, *A sanguinis sputo, puris sputum, malum*; spitting up of matter after a spitting of blood, is a bad symptom; this is not to be understood of a spitting of matter in a small quantity, which shews, that the vessel which was ruptured begins to close, but of such a

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spitting as discharges the pus in very large quantities, and are of a long standing, and argue an ulcer to be forming or actually existing in the lungs.—

Worse consequences are to be dreaded from an *hæmoptysis* occasioned by an erosion, than from a simple rupture of the vessels, for if the healing and closing of a vessel broke by some violent cause be difficult, (and an ulcer of the lungs often follows in consequence of such an accident) how much more are we to be alarmed, when the erosion of the vessels has brought on, not a wound, but an ulcer! Galen in these circumstances almost despaired of a cure—*Ex iis vero qui ulcus in pulmone habent ii solum insanabiles mihi videntur qui ex succi vitiosi erosione id possident, quorum aliqui ut salsulaginem sputum suum sentire se aiunt, nam longo arbitror tempore omnino opus esse, ut succi corrigatur*

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gatur vitium. Those ulcers in the lungs, which happen in consequence of a vitiated or corrosive humor, seem to be most difficult of cure, if at all curable—patients of this class say, that they perceive a brackish and saltish taste in their spittle, a long time therefore is in my opinion necessary before this acrimony of the juices can be corrected.

An *hæmoptysis* which proceeds from *anastomosis*, that is, from a dilatation of the mouths of the vessels, is the most easily cured of any; because no acrimony of the humors is implied, and the vessels, although dilated, remain uninjured. From the very effusion of blood a constriction of the dilated vessels will ensue; for a distension of the vessels depends principally upon two causes, the force of the heart impelling the fluids, and the resistance near the very minute extremities of the vessels. As soon as these open ex-

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tremities give a free vent to the blood, their resistance will be considerably diminished, if therefore the body be kept still and quiet, the circulation of the blood will be calm and easy, and the vessels will contract of themselves by their own elastic power, their diameters will become lessened, and their mouths closed in such a manner, as to admit a passage to the blood no longer—thus the *hæmoptysis* will cease; the only ill consequence to be feared, is, that the blood thus discharged by anastomosis, may lodge in the cellular substance of the lungs, and by becoming putrid, produce an ulcer in them; yet as the passage from the pulmonary artery into the bronchia is easy, such an effusion of blood into the cellular substance of this viscus is the less to be apprehended, since the fluids propelled through the vessels, readily run where they meet with the least resistance.

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The firmness of the vessels resists the fluids impelled into them; the greater therefore the strength of the vessels is, the less danger will there be of a rupture of them; but the greater the impetus of the blood is, which flows through the vessels, the greater force will be put on them.—If therefore an acrimony of the fluids be joined to an impetuous circulation, and at the same time to a weakness of the vessels, a still greater danger of a rupture of these vessels must be necessarily apprehended; now all these accidents are observed to happen in such persons as are subject to this disease. *Sydenham* observes, that persons of a warm constitution, but not so robust as others, are most commonly subject to a spitting of blood. In such persons the blood drawn from a vein, will appear of a very red and beautiful color, but the crassamentum is less firm, and the serum abounds more

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with salts, is thinner, and not so high-colored as we commonly find it in healthy blood; and as the color of the contained fluids is easily perceivable through the thin coats of these vessels, the skin will appear more transparent, because the cutaneous vessels are so small as not to admit the red blood—and the cheeks will appear of a fine rosy complexion, the bright red blood appearing pellucid through the thin coats of the vessels—*Galen* tells us, *quod color a succis proveniat non a solidis animalis partibus*; that the color proceeds from the fluids, and not from the solids of an animal.

A straitness of the breast, *σπασξενος και αβαδης* as *Galen* calls it, ever denotes a tendency to this disease—from hence it will evidently appear how pernicious the custom is, of wrapping up children and swathing them too tightly, and in grown people lacing them—
them—

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themselves up in tight stays, for the ribs by these means being depressed, the cavity of the thorax will be straitened, and the abdomen at the same time being compressed, the descent of the diaphragm be rendered difficult. Thus an evil habit disposes a naturally healthy body to a disorder, which physicians ever judged the forerunner of a consumption, where the parts were so constructed from a spontaneous formation. *Spigelius* very justly condemns this custom, and ascribes the frequency of consumptions in *England* to this cause; *ineptum est & ultra fidem perniciosum, illud studium, quod fere virgines adhibent, ut junceæ videantur, loris, & mortifero artificio, pectus in angustias cogentes, ignoræ, se angustando thoracem, januam tibi marcorique, aperire.* The care which young women take to appear of a slim and taper shape is absurd and incredibly pernicious; for whilst

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whilst by stays and other injurious contrivances they confine their chest, they do not consider they are bringing consumptions and decays upon themselves.——

It is evident from physiology that many viscera are employed in changing the crude aliment into the nature of the human fluids; every one of which performs the function allotted to it: when therefore the viscera, by means of weakness, are unequal to their destined office, the fluids secreted from them, must necessarily degenerate from their natural qualities, the chyle will be crude, viscid, and even acrid; for unless the food can be subdued by the chylopoietic power of the viscera, they will degenerate into their own nature, be it into an acid, putrid or rancid acrimony, or even into a tough viscid glue according to the different matter of which they are constituted.

tuted.—— Now the lungs are more liable to be affected by this fault in the fluids, and that, much sooner too, than any of the other viscera, because such a vitiated chyle, as soon as it is mixed with the blood in the subclavian vein, must immediately pass thro' the lungs, which therefore will receive the first injury in consequence of this degeneracy of the fluids. Hence *Bennet* observes, *qui bellariis & symposiis nimis indulserint, phtisi languorem importante maxime corripuntur & periclitantur*. They who indulge themselves in luxurious eating, and in drinking to excess, frequently fall into a languid decay, and very dangerous consumptions; and this seems to account why the English are so frequently attacked with this disease; for they eat strong food, drink hard, and are not so fond of vegetables as other nations are; and inasmuch as the bile is of the greatest use in chylyfication,

tion, a greater depravation of the chyle is to be feared, especially if the liver, which is the organ which prepares the bile, is any ways defective. —

An acrimony already generated in the humors, or the viscera being too weak to properly assimilate the aliment may occasion a slight fever, such as we observe in these cases, for the lungs being irritated by the acrid chyle flowing through them together with the blood, a cough ensues, which is a dry one, because there is as yet no matter formed, to be expectorated, and as at the time when fresh chyle mixes with the blood, the passage of the blood through the lungs is somewhat troublesome and difficult even in healthy subjects, hence arises a greater heat, and fulness in the blood vessels of the head—because the jugular veins do not so easily discharge their blood. This is plain if we observe the countenances
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of people when they first sit down to a feast; and after they have done—their faces then become red and turgid—because the distended stomach prevents the free descent of the diaphragm, and thereby diminishes the expansion of the lungs, and crude chyle is at the same time circulating with the blood in large quantities. Those who are obliged to speak in public, experience the truth of this observation, and find that it is much easier to do it before, than after dinner.

Violent panting on the least motion, is partly owing to great weakness, and partly to the blood's being obstructed in its passage through the lungs—hence we see consumptive people do not perceive this symptom so much in the beginning of the disorder, unless the breast is so formed as to hinder the free expansion of the lungs—but when in the progress of the disorder, an ulcer

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is once formed in the lungs, then this ulcer pressing upon those vessels which are as yet unobstructed, renders the passage of the blood from the right to the left ventricle of the heart, difficult—but in case the ulcer be open, a purulent matter will be continually discharging itself, and the patient will be less oppressed indeed in his breathing, but the body will gradually waste, and the strength fail, unless the ulcer can be healed, which it will not be an easy matter to do.—

Bennet, who was very accurate in every circumstance relative to this disease, observes that a bleeding at the nose, prevents a phthisis, or at least prolongs life; *phthisici omnes frequentiori, modo mediocri narium hæmorrhagiâ detenti, diuturniores. Si suffusio sanguinis cum pari per nares expressione arteriam pulmonariam simul occupaverit, minus periculosam, quam simplex in arteriam extrusio.*

truso. All consumptive persons who have frequent moderate bleedings at the nose, hold out the longer for such a discharge; and if this hæmorrhage accompany a discharge of blood from the pulmonary artery, it is less dangerous, than if the discharge came from the pulmonary artery alone.—He farther remarks in another place, that a moderate periodical bleeding at the nose keeps off a consumption, and is much more serviceable than repeated phlebotomy—and confirms this observation, by the example of a youth who had received a consumptive habit from his parents, and who nevertheless enjoyed an almost uninterrupted state of health from the age of sixteen, to twenty-five, by means of a bleeding at the nose, for towards the decline of the spring, and throughout the greatest part of the summer he bled one ounce, sometimes two at the nose; at twenty-five,

five, upon his taking an accidental cold in his head, this bleeding stopped, upon which his breast became greatly oppressed, and an hæmoptysis and other symptoms of a beginning consumption became threatening,—he was bled, but to little purpose—but a copious hæmorrhage from the nose returning, his breathing grew freer, and he escaped the imminent danger he was in, without any considerable alteration in his health.—If therefore a person was recovered by this means from an hereditary consumption, which is universally allowed to be the most difficult of cure, what may we not hope for in other cases from the same salutary evacuation! And this, by the bye, should also be a caution to physicians, never imprudently to stop this hæmorrhage by any remedies—however importunate the patient or his friends may be to have it done.—

An

An hæmoptysis occurs most frequently in the time of life between early youth or adolescence and manhood. — This *Galen* computes to be from eighteen to twenty-five, and from that time to thirty-five he calls persons youths, and imagined *Hippocrates* used the plural word *ætatibus*, ages, because during that interval, between eighteen and thirty-five, both adolescence and youth were comprehended. — *Aretæus* says simply *juvenes autem usque ad consistentem ætatem* (μεχρι αχρησ) *post sanguinis sputum phtbifici sunt.* — Youths till the time of full growth become consumptive after an hæmoptysis. There are three principal ways, by which in time of health such things are expelled from the body, as would, were they allowed to remain there, be very injurious to it; viz. by stool, urine, and perspiration. — when these excretions are not well performed, diseases, and these sometimes of

very dangerous consequence, will often happen, but the lungs in these cases do not seem to be more exposed to injury than any other parts of the body; physicians have observed other excretions by which noxious superfluities are discharged from the body, which would be attended with great mischief if they were suppressed,—and in consequence of the retention of these acrid particles the vessels of the lungs become corroded, and an incurable consumption be brought on.—An acrid serum frequently oozes from the skin of the head in infants, which, drying into a crust, becomes foetid.—A like disorder sometimes prevails over all the skin, now should this by any accident or design be checked, terrible disorders and convulsions might be the consequence; nay the lungs themselves would be frequently affected by it, and a consumption ensue. I have sometimes

times seen a periodical asthma which lasted many years, brought on by a stoppage of this excretion; the fits of this asthma went off each time by a like cutaneous eruption on the face; about the time of puberty, the intervals of the fits grew considerably longer, and the person afterwards was quite freed of this complaint: hence we are taught, that the morbid matter in these cases is not discharged by the usual channels, but seeks a passage through peculiar ways, which the rules of art cannot predetermine, but must be learnt from a very diligent, close, and careful observation.——Experienced physicians therefore are very cautious how they check such excretions, though they are very troublesome, or how they drive them into other channels, but with the greatest circumspection. — Doctor *Mead* very judiciously remarks, *habent enim hu-*

mores vitiosi suam quique indolem, cumque per modum crisis plerumque prorumpant quantumvis minui possint; vix tamen cum bonis ægri rebus per alios meatus, quam quos natura monstrat, e corpore prorsus exeunt; the vitious humors have each their particular property, and as their eruptions are generally by way of crisis, though they may be lessened, they cannot with safety be discharged by any other ways than those which nature points out.—

Hoffman says that they are mistaken who suppose an abundance of wholesome blood of a good consistence to be the proximate and material cause of hæmorrhages; for in such constitutions the vessels are strong and the juices mild—he rather feared hæmorrhages in those whose blood abounded with a larger proportion of serum than of crassamentum, which is ever the case in subjects of a softer texture, and
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is a proof that the blood is thin and acrid. It is certain however that bloody discharges checked, frequently lay a foundation for the most grievous disorders—and that it is therefore advisable either to bring on these evacuations again, or to promote other discharges in parts less dangerous than the lungs. The hæmorrhoidal flux imprudently checked will bring on a dropsey or a phthisis—*Hippocrates* was well aware of this;—*diuturnas* (says he) *hæmorrhoidas curanti nisi una servetur, periculum est hydropem succedere vel phthisin*. In the cure of bleeding piles of long standing, unless one be left open, there is danger of a dropsey or consumption.—

That even the larger vessels may be broken by a great force is well known—how much more may this be feared of the tender vessels of the lungs—it seems rather strange that this should not often happen, and especially from

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a cough, which violently shakes the whole chest, and at the same time forces large quantities of blood into the vessels of the lungs; hence we see, that in violent coughing the whole face becomes swelled and turgid, and the eyes quite red with blood—as the blood cannot return from the head by the veins, the right ventricle of the heart having no room for it, and its passage through the lungs is obstructed, while it moves faster than usual in the arteries—and in the *Tussis ferina* as it is called, and which is sometimes epidemic, we see many afflicted with it grow black in the face and are almost choaked, whence a spitting of blood will often follow. The intestines of a boy were burst, who died in a fit of this cough—and *Hoffman* relates a case, in which he says one of the vertebræ of the back was broken by the violence of a cough.

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In the last efforts of a woman in labor, when she is just at the point of delivery, the vessels are strained with a prodigious force, especially if the woman is somewhat advanced in life, and it is the first birth——and I have known a rupture of the vessels and an apoplexy follow upon these unhappy occasions. In bodies of a tender frame, the vessels of the lungs are so strained by this effort, that a spitting of blood is the consequence. It may hence be easily inferred, how these causes may still be more likely to produce these effects, when a great part of the vessels of the lungs are obstructed by a scirrhus or polypus—or when it is so much compressed by another humor, as not to admit the blood to pass freely through them—for then these per-vious vessels of the lungs will have so much the greater force to sustain, if the motion of the blood be suddenly

accelerated by any cause.—In a young virgin who labored under a difficulty of breathing occasioned by a suppression of the menses, *Hoffman* observed an enormous quantity of blood thrown up by coughing, attended at the same time with a spitting up of several large, hard, fleshy substances; which on examination proved to be polypose concretions, and weighed above four ounces. The preceding symptoms and the hæmoptysis which proved mortal, were a very strong indication that the vessels of the lungs were obstructed with polypose concretions, which, on the bursting of the lungs, were thrown up together, attended with a great effusion of blood. — This spitting of blood we frequently observe in persons who imprudently drink down large quantities of very cold liquors, after having greatly overheated themselves with hard labor or violent exercise.—*Trallian* and *Galen* do both of them
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consider a sudden and violent cold among the causes of a rupture of the vessels, not that it is effected by the cold itself, but because the coats of the veins rendered hard by the cold, resist a longitudinal extension and so are more easily ruptured—and he reckons a plethora or violent motion as the immediate causes of a rupture of the vessels—*Hippocrates* says *frigidum valde venas frangit & tussim citat ut nix & glacies*. *Hoffman* observes that just before an hæmoptoe comes on the patient frequently perceives a chilliness and constriction at the extremities, and more particularly a lassitude in his feet, a flatulence in the abdomen, costiveness, an oppression at his breast, and a difficult respiration: to these symptoms he adds, in another part of his writings, a shivering or coldness of the skin, a disappearance of the vessels on the hands, a pain
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in the back, *donec*, continues he, *sequente in faucibus titillatorio & secundum tractum arteriæ asperæ quasi pruriente sensu, sub calida ebullitione & undulatorio in dextro latere motu, ipsa eruptio sanguinis incidat*; till at length a kind of tickling sense and an itching is felt all along the *aspera arteria*, attended with a warm ebullition and undulatory motion on the right side, and then the spitting of blood comes on. — These symptoms I have myself observed to happen, though seldom or ever together in the same patient; and I have seen several persons, who had frequently been subject to an hæmoptysis, who knew it was coming on, upon feeling a kind of tickling in the *aspera arteria*, a slight oppression of the breast, and that undulatory motion sometimes in the right, and at other times in the left hypochondrium; in consequence of this foreknowledge they had immediate recourse

course to the lancet; and have thereby prevented the hæmoptysis for the present: *Aretæus* observes that an hæmoptysis may proceed from a disordered spleen or liver, but he adds, this is not easily or constantly produced from such a cause, as these viscera can more readily discharge their contents into the stomach and intestines. He adds however that it is neither impossible nor incredible, but that they may discharge themselves upwards through the lungs and the artery (he means the aspera arteria) since in fevers occasioned by obstructions in the spleen and liver, an hæmorrhage from the nostril on the side in which the affected viscus is situated, will ensue.

Experiments demonstrate that fluids injected into the pulmonary artery, easily pass into the bronchia; the injections with wax into the arteries of the lungs, render the vessels which
branch

branch over the whole surface of the air-vessels of the lungs very conspicuous—if some of these small vessels be broken, or their extremities dilated, they may discharge a small quantity of blood, which stagnating in these parts, is thrown up afterwards in clots; it is farther to be observed that the cellular membrane every-where interlines the lungs between the trachea; and that when the lungs inflated and dried are injected with wax, innumerable vessels appear distributed over the surface of this membrane; if now, either a rupture or an anastomosis happen among these small vessels, the blood collected there will not be spit up, but stagnating on the outside of the air-vessels of the lungs, will form an ecchymosis, or effusion of fluids, such as happens in consequence of a bruise under the whole skin, or in a scurvy and other diseases

diseases arising from an acrimony of the humors which corrode the vessels. It is true, that such effusions, especially when they proceed from some external violence, are often gradually re-absorbed and disappear, but in scorbutic habits they not only sometimes remain for a considerable time, but they often degenerate into obstinate ulcers; and it is to be observed that blood discharged upon the lungs is detained by very tender membranes; so that if the fluid becomes more acrid by stagnation, or from its quantity distends these membranes beyond their strength, then bursting them, it will find a passage into the bronchia.—

That the lungs may be lacerated by a wound or some other violent cause is by no means improbable, and that some portions of the lungs thus lacerated, may be expectorated—but when no such causes have preceded, such an accident

accident is not at all likely. Such polypose concretions, are sometimes thrown up after a violent spitting of blood, but the blood in this case is discharged upon the bronchia, and unless it be immediately thrown up, it will coagulate there, and readily assume the figure of the vessel in which it is lodged; and the longer such a polypus remains there, the more dense it will become, and sometimes grow entirely white; if now we consider, that the patients upon account of their weakness from loss of blood, or by the advice of their physician keep themselves very still and quiet, abstain from talking, and suppress their cough as much as possible, it is not all strange, that part of the blood fallen upon the bronchia, should coagulate into a polypose substance, and after some time be thrown up by a cough, especially should the hæmoptysis return. The pulse is slow,
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soft and fluttering at the time of an hæmoptysis, because the blood which comes from the right ventricle, passes lessened in its quantity to the left ventricle, as part of it is discharged into the air-vessels of the lungs; and it is to be considered at the same time, that men are generally terrified when they are seized with a spitting of blood, which occasions a panting, occasioned also by this effusion of blood on the bronchia—a brackish taste in the mouth frequently precedes an hæmoptysis, especially when caused by an erosion of the vessels from too great an acrimony of the humors.

Bleeding is adviseable in an hæmoptysis for two reasons; principally, that the quantity of the blood circulating through the vessels may be lessened, and the vessels by that means be less distended, and the blood returning through the veins in a smaller quantity

tity to the heart, the heart itself may contract less forcibly; by this operation an inflammation may also be prevented.

An hæmoptysis generally decreases after bleeding, nay often quite stops, unless some large branch of the pulmonary artery be torn or eroded; but as there is some reason to apprehend its return, it will always be adviseable to repeat the bleeding; the intervals between this operation, how frequently it should be repeated, and what quantities be taken from the vein, can only be determined by the particular symptoms which a physician will be the best judge of. The following circumstances should be particularly attended to; if the hæmoptysis stopped after the first bleeding, and the patient felt no pain in his breast; if the pulse was regular and slow but not full, if the heat of the whole body, especially at the

the extremities, was less than in sound health, the breathing free and easy, after a second bleeding, for three or four days — but as soon as the pulse grows full and strong, and the heat of the body and in the extremities, is equal to, or exceeds that of a person in health, if there be a tension, or an obtuse pain be felt in the breast, and the cough grows worse, immediately bleed again, even these symptoms appear but a few hours after the first bleeding, the greater or lesser quantity to be taken away, depends upon the symptoms likewise, for the whole intention must be to lessen the quantity of blood, that the vessels may be less distended, and to weaken the *vis vitæ*, that the blood may pass through the vessels with less impetuosity, and the ruptured vessel have a better chance to consolidate and heal, and the cicatrix now forming, and yet but tender, not break open afresh.

There can however be no determinate rule laid down, but attention must be had to the patient, and to the circumstance of symptoms.—An inflammatory crust has sometimes been observed upon the blood of persons seized with an hæmoptysis, though this does not frequently happen, yet the above described symptoms have called for repeated venæsections—we are not quite clear with regard to the nature of this inflammatory crust or size—if for instance blood drawn from a vein be received the into three basons, this crust will appear in the first bason but not in the rest; sometimes in the second and third basons only, though the blood has issued from the orifice in a full stream. I have seen a man who threw up a very large quantity of blood in an hæmoptysis, which was received into a bason, but it was not at all fizy, though the blood taken from his arm had a very
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thick fizy coat upon it—so that this appearance only will not sufficiently determine us in the cure of an hæmoptysis. In general *Sydenham* recommends a frequent repetition of bleeding in the cure of this disorder—but it should be left to the discretion and judgment of the attending physician. It will always be safer, rather to exceed in this operation though it weaken the patient, than to leave him to the hazard of a return of the disorder. But bleeding is serviceable on another account. It is very evident that the ancients apprehended very great danger, when an inflammation or fever attended or succeeded a spitting of blood, and with very good reason, because under such circumstances, an ulceration of the lungs and an incurable consumption might be expected. *Galen* ever deemed it de-

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sperate.—*Ætius* likewise strongly inculcates the necessity of trying every possible method to cure a wound in the lungs while it is recent, and before the inflammation begins; for if an inflammation comes on, there is little room to expect the wound will close, and the cure of the disease will be greatly protracted; for the pus and ichor must be cleared away after the inflammation is removed, and the patient afterwards be treated as labouring under a consumption. We find the same observation in *Hippocrates*, his words are, *sanguinem spuentibus confert, ut sint sine febre, & tussiant ac doleant leviter & ut sputum tenue fiat ad dies bis septem. Febricitare autem & tussire ac dolere vehementer, & sanguinem recentem semper spueri, damnosum.* It is well for those who spit blood to have no fever, and but a slight cough, to be without pain, and what they spit up to be thin
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for a fortnight at least — but to be feverish, to cough much, to feel great pain, and to spit up fresh blood, is very pernicious. Hence we may learn how useful repeated *venæsection* is in this case.

Cold water has been frequently strongly recommended in an hæmoptysis, and some eminent Italian physicians have experienced the happy effects of it when boldly administered—*Martin Gbisi*, who practises with reputation in *Cremona*, among other very useful observations relates, that while he attended a patient under this disease in the hospital, who was a very robust man, he suddenly threw up three pints of blood; the doctor immediately gave him water rendered extremely cold with ice, with such good effect, that the spitting of blood almost immediately ceased, and the patient kept well for three days, when

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the hæmoptysis returning with violence, he was instantaneously suffocated before any assistance could be given him—but it was owing to his indiscretion, for he (heedlessly forgetful of the danger he had so very lately escaped) drank plentifully of some strong wine, and eat voraciously of some roast meat which his wife very officiously and imprudently had in secret brought to him.—He mentions another case of a youth who had a frequent spitting of blood attended with a violent fever, after repeated bleedings and other remedies unsuccessfully applied, he gave him water made extremely cold with ice also, a cup of which was to be taken every quarter of an hour at least—in a few hours the hæmoptysis ceased, the fever and cough abated, and in a few days he entirely recovered, and continues in good health.—

Astringent

Astringent remedies are also recommended here, or such medicines as are incrassating, and at the same time soften every kind of acrimony of the humors; sometimes remedies of both classes are combined—gum arabic, gum tragacanth, starch, the root, leaves and flowers of the greater comfrey; among the astringents we may class the leaves, roots, and seeds of the plantain, cinquefoil, pimpernel, tormentil, bistort, &c.

Rest is absolutely necessary, lest the motion of the blood through the veins accelerated by the action of the muscles, should circulate through the lungs with too great an impetuosity and in too large a quantity, and so endanger a relapse—hence it is evident how much a cough is to be dreaded in this disorder—which not only endangers the rupture of a vessel, but prevents the already ruptured vessel from closing

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again.—A cough should therefore, by every method that can be thought of, be stopped by a prudent use of anodyne medicines, and the patient should for the same reason be warned not to talk much, or call out for any thing he may want—and for that reason there should always be an attendant in waiting in the room or a bell, so that the patient need not be under the necessity of talking or calling for whatever he wanted.—

The diet should be very mild, soft, and cooling, and nothing be allowed that is either acrid by nature, or that may easily acquire a considerable acrimony—the food therefore should consist of such farinaceous substances as are not very tough or slimy; of soft, mellow, thoroughly ripened fruits, well fermented bread, milk broths, soft vegetables, weak broths cleared of their fat, and boiled with rice, all
which

which are agreeable to the palate though enriched with little or no salt. Some people are fond of giving their patients calves foot jelly, &c.—now it is well known that the feet of animals boiled for a considerable time, yield a very viscid kind of glue, which is used for mechanical purposes by artificers; such a viscid glue will form a thick tenacious chyle, which will rather oppress the weak lungs, than contribute to nourish the body; so that they are to be rejected in these cases, and thin diluted broths substituted in their stead; but when the patient grows better, he may be indulged with some white meat, as a chicken for example, though very sparingly — and such food should be given but in small quantities at a time, though often, lest the lungs might be oppressed by plenty, though of good chyle, too suddenly—for we observe
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even healthy people, after too hearty a meal, have their vessels very full and turgid; at that time the plenty of fresh chyle mixes with the blood, and the breathing becomes more short and laborious than it was before, partly from plenitude, and partly because the stomach being too much distended obstructs the descent of the diaphragm, close to which it lies—for a sudden repletion even of good fluids is much to be dreaded in this case.

New milk diluted with equal parts of water or barley water in winter will make a good drink; in summer, as more diluting liquids are then necessary, the drink may consist of the same, only in different proportions; two thirds water or barley water, and one third milk. A little sugar, or Venice soap together with some absorbents may be added, in order to prevent

vent its turning sour, or curdling in the stomach.—

Blood should be taken from a vein twice a year by way of prevention, though the patient appears seemingly recovered of the disorder; this should be done about spring and autumn, these being the seasons in which we observe changes in the human body; if he is of a sanguine constitution and in the vigor of life, he may be more frequently bled for the first two or three years—and the physician should very carefully attend whether the symptoms agree with those which appeared a little before the coming on of the hæmoptysis. When an hæmoptysis has been caused by an anastomosis of the vessels, there is reason to hope a cure like that of a fresh wound without suppuration, because the vessel is not injured, and the vessels contract and close spontaneously after the blood—

blood-spitting and repeated bleedings have sufficiently emptied them. — If from any violent cause a vessel be ruptured in the lungs, there yet may be hopes of closing the wound without suppuration, provided proper means are taken, unless it be very large indeed; but when the vessels have been corroded by the acrimony of the fluids themselves, in that case it will certainly be difficult to prevent suppuration; for then it is not a single wound, and the inflammation which is commonly about the lips of the wound, will not be taken off, because in order to bring this about, a mild disposition of the fluids is absolutely requisite—and it will be impossible in so short a time to correct such an acrimony in the fluids, as was great enough to corrode the vessels themselves.

Another

Another reason for apprehending a suppuration in consequence of an hæmoptysis, is when grumous blood is left in the lungs after a spitting up of blood—for while the hæmoptysis is diminished or ceases, some part of the blood remains in the orifice of the injured vessel, and even in the bronchia themselves; now as such patients must be kept perfectly at rest, and breath as gently as possible, such grumous particles of blood will sometimes remain there a very considerable time; but when strong stypticks have been applied, and especially if the hæmoptysis has been stopped by drinking of very cold water, we shall have reason to suspect that large clots of such grumous blood have been formed, and adhere to these parts. — *Si in ventrem effusus sanguis fuerit præter naturam, necesse est suppurari*, says *Hippocrates*; if the blood
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be preternaturally discharged into the belly, a suppuration must necessarily ensue. *Galen* in his commentaries upon this aphorism, has judiciously observed, that *Hippocrates* does not there speak of an effusion of blood into the belly properly so called, but into any other cavity; he adds at the same time that by suppuration, is here meant every kind of corruption of the blood, and not its being changed into what we properly call pus. The blood in a warm moist place provided the air may get at it will soon grow putrid, and thus will it by its acrimony influence and corrode the neighbouring vessels and encrease every complaint, and bring on a suppuration.—The ancient physicians certainly seem to have feared this bad consequence from grumous blood left after an hæmoptysis, and were for that reason very solicitous to remove it as soon as possible.

fible. *Galen* in the cure of a violent hæmoptysis, after recommending it to his patient to breath gently, to keep still and quiet, and after having directed bleeding says, *ubi hæc sunt facta, primum posca tum diluta tum tepida potui est offerenda; quo, si quis in viscere thrombus latitet, resolutus extuffiatur* (ἐκλύειν) *atque hoc nihil vetat bis terve ternis horis facere;* when these things have been premised, a thin warm posset is to be drank, by which if any clot of blood be remaining in the lungs, it may be dissolved and coughed up, and there is nothing to contra-indicate its being repeated every three hours for two or three times together. *Trallian* is of the same opinion, thinking that not only the grumous blood may be thereby dissolved, but that a farther effusion of blood may also by that means be prevented, with an addition of vinegar, to which
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the ancient physicians ascribed an astringent quality. Bennet certainly feared a consumption might be produced from grumous clots of blood long retained in the lungs; *si peractis sanguinis excreationibus pulmo minus sensibilis, aut pectoralia torpida, sanguinis reliquias per ἀναστροφήν non apprime repurgaverint, retenti sanguinis & ipsius pulmonis computrescentia suborta phtbisin subsequaturam minatur*; if, when the spitting of blood is over, upon account of the lungs insensibility, or the pectoral muscles inactivity to exert their powers, the remaining blood has not been cleared away, there will be danger of a consumption in consequence of its growing putrid, or a supuration of the lungs.—It must be owned that we should endeavor carefully to remove the grumous blood, but it should be done with great caution, for fear we may excite a cough,
and

and so endanger a relapse of the hæmoptysis, which must unavoidably be attended with danger. I own I never ventured to advise persons troubled with an hæmoptysis to take a posset, and I have oftener advised it three hours after it was stopped—it is true indeed the ancients did not give oxycrate or vinegar posset hot, but lukewarm only, which indeed irritates less, yet still it does irritate, neither can this grumous blood be thrown up but by a cough, which will ever be safer, when the ruptured vessel has already spontaneously contracted itself, and that there is hope of its consolidating; besides it is to be observed, that a clot of grumous blood stopping in some branch of the aspera arteria, often has still another obstructing the wounded vessel, if such a clot therefore be discharged, the other must also come away with it which obstructed the wounded

vessel, and an hæmoptysis come on again and endanger the life of the patient, which, should we even again succeed to stop, will yet leave grumous blood, which must again be removed. —

Doctor Mead has observed that those persons who were troubled with strumous swellings in their childhood or in their younger days were most subject to ulcerations in the lungs; — *experientissimum medicum Radclivium dicere solitum, phthises in nostris & frigidioribus regionibus esse plerumque strumosas; sæpissime itaque videmus in tabidis post mortem incisis, pulmonem tuberculis seu glandulis induratis obsitum, quæ suppurantia pus expuerent,* that most experienced physician doctor Radcliffe used to say, that most of the consumptions in England were of the strumous kind; we therefore most generally observe in such bodies as have been dissected, and have

died

died

died of this disease, the lungs filled with tumors or indurated glands, which suppurating discharge matter. We frequently see persons subject to strumous complaints, have swellings in the neck for several months nay for several years, which nevertheless do not come to suppuration, and when they do begin to suppurate, it is only a part and not all of them—besides, it is farther confirmed by many instances that these tumors may be and are lodged in other viscera, and it appears farther that these tumors even in the same body, may be formed of different substances; sometimes the matter contained in them is whitish or grey, mealy, and more or less soft, and of various different consistences.—Sometimes they are every-where hard and scissile—in some we find matter which is like lime moistened with water, and which is not rough to the touch;

in some we find a hard calcarious substance, rough in handling, and concreted as it were into a fungous stone. — In the body of an asthmatic youth the lungs were found in part ulcerated, and partly full of such sort of tubercles filled with a chalky matter, the concave side of the liver, the spleen and the whole mesentery, were covered with a number of these tubercles. In a boy of four years old, who seemed perfectly recovered from a beginning consumption, but who died in convulsions, the lungs were found filled with such tubercles, some of which contained a thin pus, others again a substance as thick as new cheese.

If therefore the lungs be stuffed with such tubercles, and that they contain a thick calcarious matter which cannot be brought to suppurate but by the slowest and even most difficult methods,

methods, it is evident a man may die with a slow marasmus, (because the action of the lungs in forming the chyle is impeded) even before a purulent phthisis comes on—which however would most probably have happened had the patient survived much longer. We have many examples to illustrate this. — A soldier twenty-five years of age, came to the hospital, he had a slow fever, dry cough, a slight oppression of the breast, his face was pale, and his body extremely emaciated—after two bleedings, he was put upon a milk diet, and in the evening they gave him syrup of white poppies—nothing did him good, he grew still thinner, his strength decayed, and he died very quietly, without a diarrhoea, which is generally the concluding scene in a consumption; his breathing through the whole course of his illness was not

at all laborious.—On dissecting the body, handling the lungs, they felt as if they were filled with gravel, and the lobes being opened, we discovered a large number of tubercles each as big as a pea, which contained a matter much resembling plaister but something softer. Another soldier of twenty-eight years of age, weak and emaciated, was afflicted with a very troublesome cough for eight months, on being brought to the hospital, he was put to bed with a slow fever hanging upon him, he coughed much, but spit seldom—and when he did the saliva was glutinous, and white, but never purulent, he could not bear to lie on the left side.—Various remedies were tried, but all to no purpose, slight sweats succeeded, sudden emaciation, a difficulty of swallowing, an aphonia, and at length death—but he never had a looseness. On dissection, the lungs
were

were found every-where adhering to the pleura; every-where filled with very small tubercles, about the size of a grain of millet, when the lungs were squeezed, hard tubercles were observable as big as a nut, some of which being cut open were found to contain a white substance resembling soft plaister, one of them only contained real pus. In the upper part of the right lobe we found a tumor as hard as a stone, and as big as a small hen's egg—the author of these observations (*Barrere*) very justly remarks, that such a disorder was incurable when arrived at its height, and when the lungs were every where loaded with these hard tubercles—but where he luckily took it in time, he had saved many soldiers by sending them into a purer air up into the mountains.

Such tubercles, though they were originally hard and filled with a
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chalky substance, yet will suppurate in time, and produce a consumption with an ulceration of the lungs; so that they may be reckoned among the causes of a pulmonary consumption. — It may so happen indeed, that these tubercles may be so numerous as almost to destroy the action of the lungs, and so kill the patient with a true marasmus, before the tubercles have any possible time to suppurate. Very many instances of such kind of consumptions occur in practice. A spitting of purulent matter, which in some measure relieves the patient, follows upon an obtuse pain felt deep in the breast, attended with a difficulty of breathing; the quantity expectorated gradually decreases, the small vomica heals up again, and the patient thinks himself quite recovered; but, as a new tubercle generates pus and breaks, all the former symptoms

symptoms return again in very few months after.--I have frequently seen repeated instances of this, and I have been assured by many physicians that they have observed the same thing.—The generality however of these patients die consumptive at last, though they hold out a considerable time before they sink under the disease, but when from any adventitious cause many tubercles suppurate together, in that case the patient dies much sooner.

After a mild, moist rainy autumn, during which the wind chiefly blew at south, and remained in that quarter the winter and spring following, a cloudy summer followed with very little rain; but the same wind still kept blowing as before, *Hippocrates* observed *quod ante incipientem æstatem atque in hyeme, eorum multi, qui jam subtabescebant longo tempore, tabidi decubuerint; quando quidem multis etiam*
dubie

dubie se habentibus tabes tunc confirmata fuit, that just before the beginning of summer, and the winter following, many who were inclined to be consumptive, were actually seized with a consumption, and others who were in a doubtful state, fell into a confirmed phthisis. Might not they whose lungs were filled with hard tubercles be justly called phthisically inclined? Is it not probable enough, that such symptoms should arise in these patients in a constitution of the air such as *Hippocrates* here describes it, especially as he premises, *pluribus tusses arida nihilque tussientibus educebatur, atque voces non multo post raucescebant*. Many had dry coughs, but did not expectorate, and they soon after grew hoarse. It is probable, that this epidemical constitution of the air was so adapted to produce a phthisis, that they who were naturally inclined to this disease, but

but had hitherto never been attacked with it, now began to feel its effects, and died.—*Hippocrates* adds, that he does not recollect any of his patients who were attacked with the disorder, to hold out for any moderate time as they all died much sooner than was in general usual in this disease.

If a spitting of blood continue for a long time, neither encreasing nor diminishing, it is most assuredly a very bad symptom—*Hippocrates* says, *quibus in pulmone tubercula fiunt, pus educunt ad quadraginta dies post ruptionem, hos vero transgredientes plerumque phtbifici fiunt.* They who have tubercles in their lungs, spit up matter for forty days after they break, if the spitting continue longer, they generally become consumptive.

It may seem wonderful that when the wounded lungs have been almost entirely destroyed by suppuration (which

(which has sometimes been observed in practice) that the patient should not rather die of a sudden hæmoptysis, as the right ventricle of the heart would propel the blood through the pulmonary artery into the wasted lobe of the lungs.—This in fact now and then happens, though rarely, and the patients more frequently die of a slow consumption. Very many instances certainly shew, that when a suppuration is begun, there is less danger of an hæmorrhage. This we see in wounds and in amputations. When in persons subject to a spitting of blood (even when they have had returns of this complaint) a suppuration begins, the hæmoptysis soon ceases, although a constant cough, and that even pretty violent, still remains.—I have seen the whole kidney so consumed by an ulcer, that nothing remained of it but the outward membrane, yet no blood ever
passed

passed with the urine, but mere pus only.—Perhaps some peculiar formation of the lungs may account for this difficulty.—It is well known that the lungs are divided into large lobes, and these again are subdivided into smaller lobes, each of which have a branch of the pulmonary artery, according to their greater or lesser dimensions, all which however united compose the great lobe.—*Ruyseh* upon examining the structure of the lungs, says, that the blood-vessels of one lobe did not communicate with those of another, a membrane dividing each from the other.—Nay, that each small lobe had its peculiar membrane distinct from the rest, and that branches of the vessels supplied only the lobes to which they particularly belonged—he says however that this observation was made upon a calf's lungs, but the same disposition did not always (if ever it did

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at all) prevail in human bodies. —
 However in another part of his writings he demonstrates the subdivision of the greater lobe of the lungs into innumerable small ones. *Helvetius* on examining the structure of this viscus, found that the arteries do not pass from one lobe to another, but that each of them supplied its own peculiar lobe, and that the larger branches ran between the lobes. *Lieberkuhn* a most skilful enquirer into the structure of the viscera, compleated this discovery, and shewed a preparation of a part of the human lungs (divested of its external membrane) divided into small lobes, which hung down upon the aspera arteria; he injected three different branches of the arteries and one vein with an injection of different colors, and by this method evidently demonstrated, that there is no communication between the lobes by the blood

blood-vessels; hence we may comprehend how some one small lobe of the lungs may have its vessels obstructed, may be inflamed and suppurate, and yet not communicate the disease to the neighbouring lobes.

Thus we understand how a slow consumption may gradually prey upon the lungs, without bringing on a sudden and fatal hæmoptysis, as the disorder gently pervades one lobe to another and small arterial branches supply each lobe with blood, the circulation thus remaining uninjured, and passing freely through that part of the lungs which is as yet in a sound state.—We are farther from the consideration of this structure of the lungs taught what these tubercles in the lungs are, which physicians have so frequently observed to be inflamed, and to suppurate successively.

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It is however to be confessed, that the lungs have not always been found entirely destroyed in those who have died consumptive, though a very large quantity of pus had been daily discharged upwards—and the physicians have thence consequently concluded that this viscus was entirely consumed. I must freely own that this has occurred to me in practice—a very singular instance of which happened in the hospital at *Vienna*, where after a very copious discharge of pus by expectoration, the lungs were found entire, but every-where adhering closely to the pleura, and to the pericardium on the left side of the thorax: but which way soever they were cut, not a drop of pus or the least marks of a vomica appeared, but on opening the trachea some pus was found lodged there. Experience proves that a suppuration does not

not always consume the part from whence the pus arises, and yet that when a great quantity of pus is daily discharged, the body wastes away.—

After an amputation of the breast, or of a limb, surgeons often to their great regret, see their patients waste away, from an excessive discharge of matter from so very large a wound—so that all the fluids of the body, converted into pus, are carried off, and then the poor patient, who at first seemed to be in a promising way of recovery, sinks under the evacuation—but a short time before the patient expires, all the wide surface of the wound grows dry, and when dead, there remains not the least appearance of any pus. I have seen very large ulcers in the legs, which had daily for many years together discharged an amazing quantity of fetid ichor; and when upon the use of the bark, a laudable pus was

formed, the wound began to cicatrife, and there did not appear the least loss of substance, after the wound was closed and entirely healed up.

When one lobe of the lungs is purulent, we sometimes find pus lodged in the other lung, for while the patient now much weakened, endeavors to spit, but cannot, the pus is pumped up into the aspera arteria, from whence it may easily fall into either lobe of the lungs. Doctor *Simpson* upon opening the body of a man who had discharged a great quantity of blood before his death, found a scirrhus on the upper part of the right lobe of the lungs, and at the same time a sinus full of matter, large enough to contain a man's finger; he also found a stone, and a quantity of water in the cavity of the right breast, but the left lobe of the lungs was entirely sound, well colored, and without any hardness; and

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he was surpris'd to find pus issuing from every part of the lungs while he was cutting into different parts of its substance, but the pus did not issue forth in large quantities together, but by a drop or two at a time, so that it is probable it might come from the branches of the aspera arteria, as they were successively cut open.

It is not the red blood which is changed into pus, but rather some of the thinner fluids secreted from the blood, for so long as a wound is bloody we see no pus, but the vessels afterwards contracting, the surface of the wound grows moist with a thinner humor, which gradually turns to pus on the surface of the wound, if it be guarded from the air, for if the wound be exposed to the air, it all dries up and is covered over with a scabby crust, under which the pus is formed. By how much the matter spit up in this

disease deviates from the qualities of laudable pus, by so much *cæteris paribus*, have we reason to doubt of a cure; for whether this proceeds from the nature of the matter being too long retained in a fistulous ulcer of the lungs, and rendered more malignant thereby, or whether the ulcer itself constantly pours forth a sharp ichor of a different quality from laudable pus, there will always be danger, lest the evil should extend itself more and more, or that the pus rendered both more acrid as well as thinner by its retention, may be reabsorbed, and so infect the whole body in such a manner, as to render it entirely unfit for nutrition, and so cause the consuming away of the body. Physicians should attentively examine the saliva of consumptive persons, in order to form a proper prognostic from it. *Hippocrates* says, *phtihiscorum in aquam salis expuentium sputa si ad fundum*

fundum tendant, cito pereunt. If what is spit up by consumptive persons into salt water sinks to the bottom, it is fatal. — Almost all physicians after him have condemned the saliva when it is dense, and sinks in water — and have accounted this gravity of the matter as a sign that some parts of the solids, which were beginning to waste, were carried off, and being heavier than the water sunk down to the bottom of it. Purulent matter spit up will swim upon the surface, though sometimes a part of what the patient throws up will sink, while the other part will swim a-top. — *Hippocrates* for this reason directs the trial to be made with salt water, as it is specifically heavier than fresh water, and therefore whatever is expectorated must be much denser and heavier to sink to the bottom, as a confirmation of this prognostic. — But we are to observe

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that this holds only, in saliva which is rarely purulent without any mixture of mucus, for the mucus which lines the trachea and bronchia is ever frothy and contains air-bubbles, and if it be mixed with the pus, or by its viscosity adheres to the outermost edge of it, the purulent saliva will swim on the surface, though properly speaking it is in itself heavier than the water; this will readily explain the reason why we often see it swim a-top, and then sink down into the water though expectorated at the same time—for while the mucus still adheres to the sides or is mixed with the purulent expectoration, or the air-bubbles contained in the mucus are not broken, it will necessarily swim on the top, but when once the mucus is dissolved, and the air-bubbles dispersed, then it will sink to the bottom of the water.—In spitting up matter (says *Bennet*) that which lodges

lodges about the upper part of the trachea, is brought off without straining, by a slight cough; but that which is seated at the bottom of the bronchia is thrown up with difficulty. The same author confirms what *Hippocrates* has written by his own observations, and reckons among the mortal symptoms in a consumption *pus cænosum, ponderosum colorisque cinerei quod aqua injectum facile quasi ei commiscetur fundumque petit*: a filthy, heavy, ash-colored pus, which on being thrown into water easily mixes with it and sinks to the bottom. The matter spit up in consumptions has various tastes also. *Hippocrates* mentions *sputum crassum ex virore pallescens & dulce per tussim rejici*, the expectoration of a thick palish green, and sweet saliva by a cough—and soon after *quod sputum ore continens excreaturus illud detestetur*. And in the *Coacæ prænotiones* he says, *qui sup-*

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*purati futuri sunt primum saluginosum
spuunt dein dulcius*—before a purulent
matter is expectorated the patient per-
ceives a saltish thin and sweetish saliva
in his mouth.——I have sometimes
heard patients when they had just spit
up matter complain of the nauseous
sweetness of their spittle, and *Bennet*
esteemed this symptom very pern-
cious; *ex profuso vitali neEare deflores-*
centes & arescentes strigosas perisse, for
he imagined the nutritious juices were
excreted by this spitting, and there-
fore the patients were destroyed by a
consumption or marasmus, and he was
the more confirmed in his opinion, be-
cause he had observed in the body of a
man who died after such a spitting,
and who had sometimes spit up blood,
that all the organs of respiration, and
all the viscera appeared sound to view,
but the lungs were every-where soft
and had lost their tone—as also because
this

this saliva when put on the fire, like all nutritious juices, acquired by heat the consistency of a whitish jelly.— Very fetid saliva is a still worse symptom, as it indicates a putrefaction already begun, however *Bennet* seems to be of opinion that it is not always mortal, for he says the purest blood will grow putrid if it be deprived of its own vital heat.—Certainly grumous blood contained in the bronchia, or pus lodging there, and not soon excreted, may grow corrupt from the free access of air and moisture and heat of the place—for this reason he further observes, (when he is describing the symptoms of an incurable phthisis) a stinking breath to be a bad sign, but adds, when joined with a great panting and laborious respiration. — It is not very safe to be much conversant with persons in this stage of a consumption, for as the putrid effluvia of the

the saliva may be drawn in with the air into the lungs of the by-standers, there may be danger of infection. Galen says *periculosum est consuescere his qui tabe tenentur, atque in totum cum omnibus qui putridum adeo expuant, ut domicilia, in quibus decumbunt graviter oleant*: it is dangerous to be much in company with people in very deep consumptions, especially when the breath is so fetid as to communicate its influence to the very chambers wherein they lie.—A man's wife expiring of a consumption, giving him a parting kiss, all that part of the chin which her lips had touched remained smooth ever after, though his beard grew thick all around it—his lungs however were never affected by it. Physicians have sometimes thrown what has been spit up by consumptive patients on burning coals, and if it was fetid, they prognosticated certain death to be very near

near approaching——but it is certain that all spittle smells ill when it is burnt, and *Bennet* therefore does not depend so much upon the certainty of this prognostic — the greater or less stench in the spittle when burning, may indeed be a sign of a greater or less corruption of the humors. *Hippocrates* accounts this a bad symptom but then he adds also—*si & capilli a capite defluent*, provided the hairs fall off from the head.——

A vomica may certainly break in such a manner as to discharge the matter contained in it into the cavity of the thorax ; this however happens but seldom in consumptive cases, as the pus is generally thrown up by the mouth—but where it does happen, it is easy to foresee that there is very great danger, for we then may reasonably conclude that the lungs already ulcerated, are at the same time loaded with pus on all sides.

Anxiety

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Anxiety arises from an obstruction of the passage of the blood through the extremities of the pulmonary artery, now in consumptive cases, where this viscus is either gradually consumed, or filled with matter, this obstruction will necessarily happen, and this in a greater degree, the nearer the poor patient is approaching to his end, they complain of nothing more, nor are more desirous of relief than for this distressing symptom; the oppression encreases towards the evening, because the spitting decreases about that time, and the fever rises; and the more rapidly the blood moves through the obstructed vessels, the greater will the anxiety be. If a person in health runs very hastily and thereby quickens the blood's momentum, an anxiety arises in consequence of it, because the lungs cannot admit a passage to the blood so fast as the veins convey it to the right ventricle

tricle of the heart, hence unless the velocity of the blood be lessened by rest and quiet, sudden death would follow—as may be observed both in men and beasts who have run upon the stretch for any length of time—but in the morning when the fever abates, and the saliva concreted and collected during the night is expectorated, we find the consumptive patients grow better—the thirst in this disorder is occasioned by the putrid taint of the blood rendered acrid—and this will be still farther encreased by night sweats which dissipate the most fluid parts of the blood.—

Red pustules often happen, because the thinner fluid is drawn off by sweat, and the thicker part stops up the narrow pores of the skin—these pustules we observe in healthy persons in very hot weather.—*Bennet* among the signs of an incurable consumption, says a scurf

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scurf on the extreme parts and on the skin, with a deficiency of moisture upon the external parts, is a bad sign—*Hippocrates* has observed the same thing.

From the pus mixing with the blood as it flows through the ulcerated lungs, the whole blood is corrupted, and the crasis of the fluids so broken down, that they issue from the body in great quantity in a colliquative sweat: but when the vital powers grow weaker and weaker, and the most fluid parts flying off by sweat, leave the remaining humors more viscid, the fluids carried towards the skin will pass with much greater difficulty, and here and there raise watery bladders upon the epidermis, somewhat like white miliary eruptions, only that they are somewhat larger.—*Hippocrates* was not ignorant of this—for after recounting the symptoms attending in the last stage

stage of a consumption he adds—
Ἔ φλυκταίναι per corpus nascunt.—Wa-
tery pimples break out upon the body.

Swelling of the hands and feet is a mortal symptom, because the reab-
sorption of the lymph is rendered more
difficult—and stagnates in the most
remote parts from the heart.—The
fluids and solids of the body are con-
stantly changed by the hectic fever,
are worn away, and destroyed by sweats
and expectoration, and as they cannot
be resupplied bring on that great weak-
ness which attends these disorders—
the dryness of the parts which are the
instruments contrived to form and trans-
mit the voice, occasion a hoarseness.

Falling off of the hair is also a fatal
symptom, because it shews the fat
and oily parts of the body to be en-
tirely consumed and wasted away, and
that the skin is quite dry and sapless—

Huic si jam capilli ex capite defluant
(says

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(says Hippocrates) *caputque velut ex morbo jam nudetur, & super prunas expuente graviter sputum oleat, hunc intra breve tempus periturum asserito, & quod, enecet, alvi profluvium fore.*—The humors are driven inward, and being dissolved by a putrid malignancy, rush on the intestines and produce a fatal diarrhoea.—*Aretæus* takes notice of the same thing.—But white fæces are most dangerous of all, for in this case all kind of nourishment is drained from the already too-much exhausted body. A vomica of the lungs which follows upon a peripneumony is in general of a larger size, and when it breaks discharges a greater quantity of matter all at once, than that which happens after an hæmoptysis, which are frequently smaller, and consequently discharge a less quantity of pus—less is to be feared when the vomica breaks and discharges the pus from the body, than

than when it is reabforbed into the blood.—In external abscesses therefore, unless they be very large indeed, and discharge a great quantity of matter when opened, we may almost be certain of a cure; but it is quite different in an ulcer of the lungs, for the blood of the whole body is propelled through them from the right ventricle of the heart with a rapid motion, and constantly rubs against the ulcerated part; whatever is absorbed by the mouths of the veins on the surface of the ulcer, passes quickly by a short passage to the left ventricle of the heart and is directly conveyed with the blood circulating through the aorta to all the parts of the body, for the pulmonary veins are soon emptied, and therefore it will be more easily reabforbed——this will evidently prove how much greater danger there is from a purulent infection of the blood in the case of an ulceration

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in the lungs, than in any other part whatever.

In order to prevent the pus infecting the blood, three things are primarily to be considered—first, that the pus do not remain long in the vomica, so that there may be less to be feared from re-absorption, and this is to be brought about by promoting expectoration and using mild detergents for the ulcer. 2dly, That whatever pus is absorbed be purged off and expelled out of the blood as soon as possible, lest by being too long retained it may do farther mischief; and this may be obtained by the usual excretory channels, the intestines, kidneys, or by the pores of the skin. 3dly, Such remedies are to be administered, as do efficaciously oppose that corruption of the humors, which happens in consequence of the reabsorption of the pus into the blood.—

IN

In endeavoring to answer the first indication by expectorant and detergent medicines, the physician must take care to do nothing which may impede the healing of the ulcer in the lungs. Now it is known, that if a surgeon was continually to deterge an external ulcer it would never heal; for laudable pus should be left quietly in the ulcer some time, that under it the diseased part may be separated from the sound, and that, that what is lost and wasted may grow up again. Nay, a laudable pus will never be formed unless the humors effused from the mouth of the vessels remain a considerable time in the ulcer. The same thing happens in an ulcer of the lungs, we are therefore constantly to promote expectoration, because too frequent a cough exasperates the ulcerated parts and prevents the formation of a laudable pus.—It is advisable therefore to allay the trouble—

some cough by anodynes, that the lungs may have rest at least in the night time——by which means we shall find next morning that the patient is relieved by throwing up a good and well-concocted pus; and while the cough does not agitate the lungs, there will be room to hope, that under the good pus, we may expect a consolidation of the ulcer; so that if the cure proceeds well the quantity of pus will daily gradually decrease without that anxiety which usually attends when pus is too long retained in the lungs——*Bennet* is very just in his remark when he says, in the day time, when the spitting comes on, expectoration by lenient medicines only should be promoted, because we then have nature co-operating with us—he at the same time recommends us to encourage a free perspiration, for by that means the humors will have an uninterrupted passage,

passage, and nothing be repelled upon the internal parts, which might oppress the lungs.—

At the same time it will be necessary to direct gentle detergents to the ulcerated parts; in case the pus be rather tough and viscid, and expectoration difficult, a mixture composed of oxymel, vitriolated tartar, and the syrup of the five opening roots will be of use—if there be a hoarseness, and dryness of the fauces, infusions may be prepared of maiden hair, parietary, scabious, coltsfoot, nettles, &c. which may be sweetened with honey, and drank warm often in the day. If a tough viscid mucus at the same time should oppress the lungs, which does sometimes happen, smallage, ground oak, hyssop and other such-like attenuants may be directed; nor are we to fear any thing from the warm aromatic power of these plants, as they

are first to be steeped in a large quantity of water ; it will not be amiss to add a third part of milk to such infusions——by these means urine and sweat will be promoted, and so the pus which has been absorbed into the blood be expelled by these excretions.— These infusions should be drank plentifully *by day, and not by night*, so that the patients may not be disturbed of their rest, which is so necessary to them. The second intention is to guard the blood against the purulent taint, by expelling the reabsorbed pus out of the blood as soon as possible, as well as every other fluid which may have been so altered by this taint as to degenerate from a state of health ; for in order to heal the ulcer it is absolutely necessary that mild and untainted humors should circulate thro' the vessels.—

Besides

Besides the remedies, which by ob-
tunding, are capable of weakening
any acrimony, or of destroying it
by an opposite quality, physicians
have always endeavored to expell it
from the body, by the channels
which nature ever employs to dis-
charge acrid particles from the body,
and for this end to encrease the natural
secretions and excretions — viz. by
urine, stool, and by the pores of the skin.
Now as the urine even in healthy
people contains the saline and more
acid oily particles of the blood, all
physicians have universally allowed its
secretion and excretion may very safely
be augmented in order to abate the
acrimony of the humors, and of the
blood——infusions of vulnerary herbs
encrease the quantity of urine, and
therefore may be plentifully admi-
nistered; the native balsams also have

their use, as they have apparently a diuretic quality. But we should be more cautious with regard to the evacuations by stool or sweat; for we observe in dangerous consumptions, the unhappy patients sink under nocturnal sweats and colliquative diarrhœas.—No prudent man therefore will attempt this method, when the fluids already dissolved by a putrid taint, issue at the pores in the first sleep, or when the blood dissolved and broken down, is expelled by the meseraic vessels into the cavities of the intestines, and brings on a fetid diarrhœa—in that case, the disease is desperate and beyond the power of art—but in the beginning of the disease before the strength of the patient is too much exhausted, and the body too far emaciated, these methods may be tried with a tolerable degree of success; but it requires

requires prudence and great circumspection and we must at the same time be very attentive whether the patient feels himself relieved by it or not.—Such sudorific medicines as encrease the heat and momentum of the fluids and add to the acrimony, are undoubtedly to be exploded, those are only to be chosen which are mildly aromatic, and even those should be infused in a large quantity of water, such as the decoctions of the three sander woods, of saffrafras, &c.—two ounces of this taken warm every two hours in the day time and in the evening on going to bed four ounces, and the same quantity again early in the morning—by this method a gentle equable sweat is generally procured, by which means the acrid particles will be excreted from the blood, and a mild diluting vehicle be afforded to the body.—Native balsams beside their aromatic fragrance,
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contain also an acid, which prevents putrefaction.—Myrrh has frequently been given in consumptive cases—which according to the admirable experiments of the learned and judicious physician doctor *Pringle* is a powerful antiseptic, far exceeding sea salt in this quality.—We are indebted to this gentleman for many excellent observations tending to elucidate the effects of the remedies generally recommended by physicians; as chemists observe that putrefaction produces a volatile alkali, it was apprehended that this disposition to putrefaction might be encreased by such things as contained this alkali, and yet physicians tell us that crawfish boiled and bruised in their own broth, are very proper food to consumptive people.—Now it is well known that these fish have a kind of urinous smell, not unlike a volatile alkali—the *Seltzer* waters which contain a fixed

a fixed alkaline salt, are very safely and advantageously given to persons in a consumption, especially if mixed with a third part, or even with an equal proportion of milk. *Avicenna* advises the plentiful use of sugar of roses, and orders the patient to eat of it *omni die quantum potest, quamvis multum sit, ita etiam et cum pane*—as much as he possibly can to a large quantity, every day, and that even with his bread.—He gives us a case of a consumptive woman who was at the point of death; but, says he, *tunc surrexit quidam frater ejus ad eam, curavit eam hac cura tempore longo, & revixit & sanata est, & impinguata est, & non est mihi possibile dicere summam ejus, quod comedit de saccharo rosaceo*: her brother came to her and recommended the use of this remedy for a considerable time, she escaped the disease of which she was perfectly cured and grew fat upon it,
nor

nor is it scarce possible for me to tell the great quantity she eat of sugar of roses—he also extolls troches of camphire—how perfectly does this agree with doctor *Pringle's* observations? he observes that there is a powerful antiseptic quality in sugar, and thinks it is owing to the great use of it, that fewer putrid diseases occur than formerly; and as to camphire, he says that two grains of it only, were more efficacious in preventing putrefaction than one drachm of sea salt—he also observes that there is a very powerful antiseptic virtue in the Peruvian bark. *Morton* recommended the use of the bark in this disease. *Torti* owns that he gave the bark to many consumptive patients not too much worn down by the distemper, and always found it procured sensible relief for some days, and sometimes though not always, with a manifest interruption of the febrile

brile exacerbations—but the disease soon got the better, and pursued its course even to the last period of life; yet he believes he once preserved a lady of quality who was with child by it, and kept her alive till she was delivered.—He says however that he had seen a boy who he imagined to be consumptive, and was at the same time afflicted with a *spina ventosa*; at the request of the boy's father, he reluctantly gave him the bark, expecting no good from it, but he afterwards met him walking about quite strong, ruddy, and full of flesh, insomuch that he scarcely knew him again, the lad was not only cured of his consumption but of the remains of the *spina ventosa*. He afterwards relates some other instances of consumptive persons restored by this medicine—he does not indeed deny that in some cases it proved unsuccessful, but he declares nevertheless that it did

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did no harm. This worthy physician gave it with reluctance, not expecting any advantage from it; and was therefore the more amazed at its success. I have myself frequently tried the bark in the beginning of a consumption, and never had reason to be sorry for the trial; I remember a lady to whom I gave it in various forms for a considerable time, who had a very troublesome cough, a slow fever, and was emaciated; no hæmoptysis had preceded; and though her strength was much exhausted, and she spit up purulent matter, and even had a vitiated conformation of the chest, yet she recovered perfectly.

The following case proves how efficacious sugar may be—a youth in consequence of hard drinking and excess of venery, had got a perpetual violent cough, he spit up vast quantities of matter of various colors, he labored
under

under a straitness and oppression of breathing, had a fever, and was almost worn away to a mere skeleton, his strength was greatly impaired, and his case seemed desperate: he longed very much for garden strawberries, and his physicians consented to his eating them; in three weeks time after having eat as much as cost above five and forty shillings, he was so much altered for the better in every respect, that he actually recovered in about two months time—this was in all probability owing to the quantity of sugar he had eaten along with his fruit.

Small beer without hops, milk whey acidulated with the juice of wood sorrel, of China oranges, pine apples, &c. were much recommended by *Bennet* as a constant drink to consumptive patients. Persons in this disease, who expectorated a fetid purulent matter, have been recovered by drinking waters

ters which were not only ferruginous but aluminous also.—Now doctor *Pringle* has demonstrated that alum possesses a more antiseptic quality than other salts; perhaps we might here refer to an observation of *Tulpius*, concerning a woman who by neglecting to be bled, had gathered a great deal of pus which she spit up in such large quantities as to fill a large basin, and infect a very spacious room with the stench of it; this poor creature was as emaciated and wasted as if she had been in the very last stage of a consumption; after having labored under this disorder for about four months, she longed for raw oysters, which she eat voraciously, and with such an happy effect, that the symptoms all of them presently abated, and she soon perfectly recovered.—*Hippocrates* advises salt meats to promote expectoration in purulent cases.

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The evacuation of pus by expectoration is far safer than by any other means; but this is not to be effected but by a cough, hence such remedies as excite it, are recommended; for by a cough the lungs are cleared, but we are to observe at the same time, that if it be violent it exasperates the ulcer; such remedies therefore should be administered, as render the pus which is to be discharged by expectoration easy to be carried off, and yet not so as to do mischief by an acrid stimulus.—

But when the pus is concocted, and of a laudable consistence, it is brought up by coughing, and that without the least trouble; and this chiefly happens in a morning, after a good sleep, for then the lungs have been for a long while in a state of quiet, and only moved by gentle breathing, and the consolidation of the ulcer begun under good pus—but the same expectorating

remedies are not alike good in all cases—if the saliva be naturally tough, or if a viscid mucus be excreted, together with a purulent spitting, and with difficulty, an infusion of hyssop with simple oxymel, or with oxymel of squills will be of use, or if these be judged improper milder infusions of vulnerary herbs may be administered, all these infusions drank down mix with the blood, and are conveyed to the ulcerated place; hence physicians have thought of external remedies for this purpose also, though much service cannot be expected from plaisters and ointments.—Steams and vapors may be of use, as they may every-where come into contact with the whole aërial cavity of the lungs, this *Bennet* approves of much, and relates many cases, to prove the happy effects of this method—it may however seem surprizing that he should use orpiment reduced into troches with the white of an

an egg for a fumigation as it has been described by the ancients under the name of arsenic, and therefore accounted a poison by many—but what we at this day call arsenic was indisputably unknown to the ancients, and orpiment in many of its qualities much resembles sulphur, and is improperly called citrine arsenic, as it is harmless enough. Air replete with sulphureous vapors is recommended as very salubrious in this case by physicians, and therefore do they send their patients to Mount *Tabio* particularly, which is near the city of *Naples*. *Mead* recommends fumigations with frankincense, storax, &c. — I have imitated this method in a vomica which was still whole; I contrived a steam of hot water to be constantly conveyed through a pipe, near the bed of the patient, and when I found he could bear it well, directed it still closer to him, so

that he might for a long time breathe a moist and warm air, by this method I gained my end, for the vomica broke sooner than it would otherwise have done; I also ordered fumigations with frankincense, amber, storax and benjamin, so that the whole room might be impregnated with them, increasing the quantity by degrees, for fear it might bring on too violent a cough, which would have done harm. Patients bear these fumigations tolerably well, but the amber is rather more irritating, as it is melted by the fire into a pretty hot oil and a volatile acid salt, and benjamin though its odor be fragrant enough should be sparingly mixed with the other ingredients for the fumigation, because it has an acrimonious steam, which when received on a paper cover, condenses into small parcels of a snowy color, which are sold in the shops under the name of flower of benjamin,

benjamin, and are of so pungent a nature, as to excite a burning kind of sensation when put to the tongue.—I have used the steam of benjamin, that the vomica, having first of all been softened by watery steams, might suddenly break from the violent cough which it excites.—

We are however to observe, that it is not every remedy will send up its virtues in exhalations, and under that form be carried to the lungs—emollient herbs boiled in decoctions, and given in vapor, make a very good emollient and moistening steam, though their efficacy remains behind, and it is nothing more than a watery steam—and so are decoctions made of astringent remedies, which are now and then prescribed to contract the lacerated vessels in the lungs, which nevertheless they do not; the water indeed relaxes, and the

astringent qualities remain fixed and do not ascend with the water.——

Moderate exercise such as the strength of the patient impaired by the disease can support, is of great service, for muscular motion accelerates the return of the venous blood to the heart, which in consequence contracts more in a given time, thus will also a greater quantity of blood be driven with a greater velocity through the lungs; by which means the purulent matter will sooner be discharged from the viscus, and be expectorated, especially in the morning, when a quantity of digested pus has been accumulating during the time of sleep. Perspiration will at the same time become more brisk, and the air being more frequently drawn in and breathed out of the lungs, will perform the office of an excellent deterfive remedy, more especially

ally if it be the pure clear air of a healthy country place.—But caution is very necessarily to be used here, for not only the cleaning of the ulcer, but the healing of it becomes necessary.—

Bennet very sensibly advises great care with regard to the motion of the body by day, and moderate exercise especially in persons of a warm temperament and delicate make; he at the same time recommends the lower parts of the body to be well exercised—but very strongly condemns all violent motion of the upper parts—however where the chest and adjacent parts are of a lax habit and cold temperature, the muscular motion of the arms and hands will be of use.—Now riding on horseback is of great efficacy in this as well as many other chronic diseases; for by it the whole trunk is perpetually agitated, and the air acts with greater force upon the lungs.—*Sydenham*

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much approves of this exercise and used it with great success upon many occasions, even in the most desperate stages, when night sweats and diarrhœas threatened the life of the patient; he cautions the patient however to lie in dry sheets, and to ride far enough. I have known some sailors and fishermen, who having an ulcer in the lungs became coachmen, and were perfectly cured.—Riding is an exercise which should be used in a morning, and not upon too full a stomach.—A country air is useful, not entirely upon account of its pureness, but because as the patient grows stronger, and freer from care, he may be amused with slight rustic employments, another motive which recommends the country is, the fine fragrant steams arising everywhere after kindly showers, which greatly conduce to refresh and invigorate,——

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If the prudent use of anodynes be neglected in the cure of this disease, little success can be hoped for; some are afraid, that the spitting may be suppressed by opiates, and the lungs be more loaded, but I can truly assert, that after a quiet sleep I have always observed a more easy and free expectoration in phthisical persons in the morning, and the pus spit up had every requisite good quality; it may render the patient costive indeed, but this is of no bad consequence, for stools may be easily procured by an emollient clyster.

Of a DROPSY.

A Dropfical swelling of the legs and feet is very frequently observed to happen after acute diseases. It is at present known that there are vessels in the human body which convey fluids thinner than the red blood—so that if a free passage of these fluids be denied, the vessels will become distended, and a dropfical swelling will ensue. But those arterial vessels, which transmit a fluid thinner than the red blood, at their very origination, (where however they are largest) have so small a diameter, as naturally will admit of no globule of blood, so that large tumors can scarcely happen in consequence of obstructions there.—But the case is very different in the venous vessels which convey the lymph back towards

towards the heart, and discharge it into the larger veins, or into the ductus thoracicus, which may be considered as a lymphatic vena cava. These veins before they send the lymph to the common receptacle, are not inconsiderable in their size, although collapsing after death, they almost elude our sight; yet by inflation, injection, and many other methods they may be rendered sufficiently conspicuous. *Bertin* a very able anatomist, not only says he observed many lymphatic veins in the kidneys, but farther declares, he saw a large trunk of it half the size of a goose-quill. He very candidly at the same time, informs us, that these lymphatics appear most plainly, even without any artificial assistance, when the body is opened, when it swells, just when it is tending to putrefaction; for in that case the cavities of the body swell in consequence of the expansion of the
air

air from the putrefaction, and this not only happens in the larger cavities, but in the cells of the adipose membrane also. The bodies of drowned persons for this reason float, as soon as they begin to putrefy, the tumid abdomen chiefly rising above the surface of the water, but as soon as the belly bursts, an intolerable stench follows, and the body sinks again. As the lymphatics therefore begin to swell, at the same time that the air, arising from or rather let loose by the putrefaction, distends the cellular membrane, he concludes, that there is in living bodies a communication between the lymphatics and the cellular membrane, and that when the lymphatics are diseased, the cellular membrane will of course swell with extravasated lymph. If therefore the free return of the venous lymph towards the heart be by any cause whatever obstructed, the larger

as well as smaller cavities of the body may become filled with water, and the lymphatic vessels be distended. But as anatomists have very manifestly discovered valves in these vessels, it will be very difficult to force the lymph back into these vessels, the parts between the valves will become turgid; this possibly may be one of the true causes of hydatides.——

The whole body through all the external and internal surfaces of it is perspirable. This is very evident in very intense cold, where we see it in the form of a steam exhaling every-where from the skin, the lungs and the inside of the mouth——this exhaling moisture in healthy subjects is reabsorbed before it condenses into a sensible fluid—if therefore from any cause whatever, this resorption of the perspirable exhalation be impeded, it will collect and condense into water, and so
fill

fill and distend the cavity in which it may happen to lodge. Hence it is very certain that a dropsy may be either universal or particular. Every collection of an aqueous serum is by no means to be deemed an hydrocephalus, unless the parts are so flexible as to admit of distention and to enlarge the capacity of the head, in that case indeed it may be called an hydrocephalus. This disorder however seldom happens in adults; but is generally a disease of infancy, and to which great attention should be given, as it otherwise will be difficult of cure.

An hydrocephalus in the external parts of the head only, is a very rare disease. The dura mater, it is well known, adheres so closely to the cranium, that it cannot be separated from it but with the utmost difficulty, and therefore it will not be so easy to find water collected between the cranium and

and this membrane, as it will be between it and the pia mater, for though they are very contiguous to each other, yet do they not adhere so much but that they may and do admit of an intermediate moisture. The arachnoide membrane, which lies close to the pia mater, is of a cellular substance, and is therefore very easily inflated and distended with air, as we may easily remark in dead bodies, when it is carefully opened with the point of a lancet—between this and the pia mater lymph may very readily be collected, as is frequently observed in such as have died lethargic; we perceive a sort of a jelly-like substance about the brain, as the collected lymph is every-where distributed through numberless small cells, and a thin lymph readily follows upon making a puncture.—

That the lymph contained in the ventricles of the brain is the cause of

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an hydrocephalus is very evident from a variety of observations—it seems however surprising that so great a quantity of lymph should be contained in the cavity of the skull—*Vesalius* saw a girl at Augsburg of two years old, whose head in the space of seven months grew to an enormous size; near upon nine pints of water were found in the ventricles of the brain after her decease; he observes at the same time, that the skull was entirely membranous, with only so much of an osseous substance remaining as might be equal to the bulk of the girl's skull, before it grew to that wonderful bigness. No collection of water was to be found in any other part of the body, the cerebellum and the whole of the cerebrum and the nerves through every part of their originations were in a perfect natural state, and the girl preserved her senses to the very last moment

ment of her life. *Vesalius* who saw the girl a few days before her death, observed, that when those about her moved her head or held it up ever so little, a cough and a difficulty of breathing immediately succeeded, attended with a flushing of the face and a discharge of tears. *Tulpius* gives a case of a boy of five years old whom he saw in an hydrocephalus, whose skull contained five pints of water, which when drawn off, left such an appearance of emptiness in the cavity of the cranium, as that those who were present imagined the brains were wanting—it was plain however that the brain was there, but having lost its globular figure, it had assumed the shape of a convex arch, and the soft medullary substance was so distended by the great quantity of water, that it adhered closely on all sides like a very thick membrane to the arched surface of the softened bones—

the father of the child declared notwithstanding all this that the child retained all his senses.

Petit has observed that this disease happens after difficult cutting of the teeth in children, upon violent convulsions, or when they are much troubled with worms. In the beginning of the disorder, the lips and eyelids are slightly convulsed, they bite their lips, gnash their teeth, and rub their nose, sometimes they are costive, at other times they are loose; the eyes look languid, the pupils of which seem uncommonly dilated; they grow pale, weak, melancholy and languid. The principal symptoms to warn us of the approaching disease, are stupidity and sleepiness, evident signs that the brain is already loaded with aqueous serum collected in the head; as the disorder encreases, the bones of the head begin to recede from each other, the size of the

the head enlarges, and leaves no farther room to doubt what the patient labors under. All these symptoms evince us that the functions of the brain are more and more impaired, which we cannot so easily judge of in very young infants, but when they are about a year old, we have plain and evident proofs to convince us of the presence of the disease. We have in the memoirs of the Royal Academy of Sciences an account of a boy who lived perfectly in health till he became two years and a half old, when he was attacked with this disorder; he began to falter in his speech, could learn nothing; his memory failed him, he became daily duller and duller, and at length quite stupid:—No water was found in the external parts of the head, though it had grown to an enormous size, nor between the meninges; but upon piercing into the brain, a large

collection of transparent lymph gushed forth, which had no bad smell at all. Besides the forementioned symptoms, and more especially the continual stupidity, I have sometimes observed, that persons afflicted with this disorder, cannot bear to hold their heads erect without crying out—yet as soon as they throw their head back supported by a pillow they are easy enough, but stupid. Under these circumstances I have ventured to prognosticate an accumulation of water in the ventricles of the brain, though the size of the head was not remarkably enlarged—and on opening the body, my conjecture has proved true.—I ever found the fluid collected in these cases to be limpid and clear, and by no means fetid.—

Petit in those who have died of this disease, observed the dura mater more than commonly adhering closely to the scull, the basis of the cranium quite flattened,

flattened, and as it were depressed, and the orbits of the eyes, and the eyes themselves thrust forward.——

When from the symptoms just now enumerated, I had reason to believe water was collected and lodged in the internal parts of the head, I directed the hair to be taken off, and recommended gentle friction, and this they bore very easily.—— I ordered the head to be covered with a soft aromatic plaister, such as the emplastrum e labdano or e meliloto of the shops—this was renewed twice or thrice a day, in order that the head might be rubbed again.—— I made them continue the friction till the parts, behind the ears especially, became red; for we frequently observe a quantity of matter oozing from thence and indeed from the skin which covers the whole head, this flux if imprudently checked, would greatly affect the brain and disturb all its functions—by this method I had

hopes, that the internal parts of the head might be relieved, by keeping up a due moisture upon its whole outward covering.

I tried this method on a female infant of nine months old, and was much pleased to find a considerable moisture about the right side of the *fontanella**, and that the skin of the whole head, and especially *that* behind the ears was afterwards constantly supplied with so much moisture as to oblige the nurse to change the child's caps very frequently, because they were so wet. I examined the head very carefully every day, and I found it did not enlarge, neither did the bones appear to recede from each other. I gave such gentle physic as I imagined best adapted to the tender age of my patient; but it

* Is that membranous part found in infants newly born near to the coronal and sagittal suture, which however becomes a thin bone in time.

was all in vain, for after the skin of the head had constantly for a fortnight together discharged its moisture, the stupidity encreased, and the child died after a few slight convulsive fits. I found six ounces and more of limpid water in the ventricles of the brain.—

Petit expresses much concern, that he never knew any patient who underwent the punctum in this disease to recover.

We sometimes observe a disease in new-born children analogous to this, and which is called the *spina bifida*, or double spine, because the vertebral spine seems as it were to open and recede from each other, and a soft tumor of a different magnitude grows there, containing at times a very limpid water, though at other times a fluid more thick and opaque; the integuments retain their color, though more frequently they are red or rather livid. *Ruysch*

says, " if we examine this tumor carefully it will appear very evidently that it is a dropsy of a part of the spinal marrow, and is pretty nearly the same as that disorder of children which when seated in the head we call an hydrocephalus."

This sort of tumor appears for the most part in the back or loins; sometimes, but that indeed seldom, in the nape of the neck; but very rarely in the lower and exterior part of the os sacrum; *Ruyfch* expresses his surprize at it, because the lower part of the os sacrum even in a natural state separates at its back part.—But although the vertebræ for the most part recede only on the back part near the spinal processes, the body of the vertebræ itself remaining entire, yet he observed an aperture in one single vertebra just large enough to admit a small pea, he confesses however that none of the infants

fants he ever visited escaped, and observes that death immediately ensued, if this swelling broke of itself, or was imprudently directed to be laid open.—*Tulpius* cautions much against it, and directs surgeons never to attempt it.

The lymph contained in the swelling of the spina bifida, descends perhaps from the ventricles of the brain, for we know, that the fourth ventricle of the brain is continued along the spinal marrow. We have an observation of *Wepfer* to confirm this opinion. A girl was born with a head well formed and proportioned, but on the back towards the right side of the superior vertebræ of the loins, there appeared a bright livid spot, about five inches in length and three in breadth, which daily encreased in its size, but not to be above the thickness of the finger at most, it grew so bright, as almost to shine like a looking-glass. Her right
foot

foot was motionless from her very birth—ten days after which as the water visibly appeared through the skin, the surgeon made a very small incision, from which an absolutely limpid water issued forth, and the wound was soon closed, which the mother with her nails opened six times for some subsequent days, and discharged three ounces of water from it at each time, the surgeon soon healed up the wound, but as soon as it cicatrized, and the spot disappeared, first the right frontal bone, then the left, began to protuberate, and an hydrocephalus, with an immense encrease of the head, appeared in the space of about three or four weeks. It is evident this lymph issued from the ventricles of the brain, which being obstructed, nor the integuments capable of farther distention, the head began to fill from its accumulation and became universally dis-

distended by it. Hence it will appear, that since in a part so remote from the head, it is not safe to discharge the extravasated lymph, for by the consent of the most eminent men, death will in a few days follow after such an operation; how much more dangerous will it therefore be if we attempt to do it, where the internal parts of the scull are filled with a watery serum accumulated there?

The blood passes with the briskest circulation through the coronary arteries, the heart for this reason sends forth from its whole surface a larger quantity of a thin moist vapor, so that if it be immediately laid bare in a live animal, we find it reaking all over; wherefore after death, even after the body is cold, we observe a larger quantity of moisture in the cavity of the pericardium than in any other cavity

vity of proportionate size, by reason of this condensed vapor.

In healthy animals however, all the inward parts both containing and contained, are constantly found moist, but no fluid is observed to be collected in them, when they are dissected alive, or immediately after their death, the moist steam exhaling from the arteries, being reabsorbed by the veins — the smallest of these absorbed veins, being united to those next to them, exhibit large branches, visible even to the naked eye, in the thorax, and indeed on the surface of the containing as well as contained parts, till at length these lymphatic veins discharge themselves into the thoracic duct or in the sanguiferous veins. It is hence evident that there exist passages by which the thin lymph, expelled from the extremest exhaling arteries, may be conveyed into
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the cavities of the body, and be again returned to the mass of the circulating fluids; and the accumulation or stagnation of them when collected be thus prevented. *Musgrave* injected four ounces of warm water into the right side of the thorax of a living dog; a difficulty of breathing ensued, and a manifest weakness; these complaints however went off by degrees, and in a week's time the dog was as well as ever. He afterwards injected in like manner sixteen ounces of warm water into the left cavity of the thorax of the same dog; the animal began to breathe with difficulty, grew very hot, and the heart beat very strong, but in a week's time the dog grew well again. He then injected into one side of the thorax eighteen ounces, and into the other only six, the same symptoms followed, but disappeared sooner, for the dog recovered in five days, he observed that
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the creature made a greater quantity of water than usual.

Whatever occasions an obstruction of the speedy re-absorption of the exhaling moisture by the veins, may be the cause of a dropfy in the chest; this gives us to understand; why after a spasmodic asthma of long standing; a dropfy of the chest soon follows. In this kind of asthma certainly, the right ventricle of the heart is incapable of propelling the blood through the lungs, on account of the constriction occasioned by the spasm, the vena cava consequently cannot discharge itself, the veins therefore become all of them turgid, the lips of the miserable patient become livid and swell; neither can the lymphatic veins transmit the lymph which they have reabsorbed into the sanguiferous veins, which are already over-distended with blood; the arteries in the mean while continue to
exhale

exhale their moisture, the lymph hence accumulates, or the tender lymphatic veins burst, and so perpetually distill the lymph into the cavity of the thorax.—These disorders are more especially to be feared, when the asthmatic paroxysms have been very severe, have frequently returned, and are chronic.

There is nothing perhaps which brings on this watery collection in the chest, sooner, than when a person too much overheated, suddenly drinks cold water, or remains long without exercise in the open and cold air—the sudden cold constricts the mouths of the vessels, and especially the absorbent venal, rather than the small exhaling arterial vessels; because the veins, *cæteris paribus*, have thinner coats than the arteries, as also because the motion of the fluids through the arteries towards their extremities keeps them open.

open, or opens them if they have suffered any degree of constriction; the motion of the fluids in the veins on the contrary acts not with such force on their extreme orifices, so that if they be constricted by the cold they close more easily, and collapse, and this happening to a great number of absorbent veins, will occasion an incurable dropsy, as the reabsorption cannot be restored.

The collected lymph may be lodged in five different parts of the thorax, in the right and left cavity of the breast, in the pericardium, behind, near the external part of the pleura next to the vertebræ, before, under the sternum between the two lamellæ of the pleura. We should diligently attend to these different seats of a dropsy, because they produce different symptoms, and require consequently different methods by which the collected lymph is to be drawn off—for if it
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be lodged in either of the cavities of the breast, it may be removed by the paracentesis; if it be lodged in the pericardium, a puncture is to be made in it; if it be collected under the sternum, it requires a perforation there. If the water accumulates in that triangular cavity formed by the membranes of the pleura receding from each other near the vertebræ of the thorax, it will force itself a passage by its own weight through the cellular membrane, which covers the dorsal muscles, and fills up their interstices, in the same manner as pus when gathered there, and causes sinuous and wonderfully fistulous ulcers.

A dropsy of the breast is attended with many symptoms which resemble and are even the same as in an empyema. The fluid contained in the cavity of the breast, be it pus or a watery serum, will equally compress the

lungs, and obstruct their free motion—the pus when too long retained, contracts an acrid ichor, and will irritate the parts it is in contact with; and so will the lymph when it degenerates into a putrid colluvies. — *Albertini* by close observation and dissection of bodies dying of this disease assures us, that if the fluid stagnating in the thorax, be pure and limpid, it will not occasion such an oppression and difficulty of breathing; unless it fills both the cavities of the breast, or so distends either of them, as greatly to compress the other—but when the extravasated fluid is turbid, extremely yellow, or very acrid, in that case even a very small proportion of serum in the cavity of the breast will bring on a very difficult respiration.

If we attend to antecedent causes we shall then be able to distinguish properly in these disorders. If for instance
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upon an inflammation of the breast symptoms of suppuration succeed, attended with a difficulty of breathing, we very naturally conclude that there is matter already formed. But if there be signs that tend towards a dropical diathesis; such as a leucophlegmatic temperament; swelled face, feet, legs, thighs or scrotum, we may then pronounce it to be dropical; and we may still be more strongly confirmed in our opinion, if there be a difficulty of breathing, and upon striking the body, we perceive a fluctuation or hear the noise of water in the breast. We know moreover that a dropsy of the breast frequently succeeds a convulsive asthma, we therefore have great reason to pronounce our opinion if such a disorder has preceded; whatever cavity of the breast the water be contained in, the patient cannot lie on the well side; if both the cavities are filled the patient

is most easy in an erect posture rather inclining forward.——An œdematous swelling of the feet not only generally attends this distemper, but it relieves the breast greatly as I have frequently observed, provided the swelling encreases in the lower extremities. If on the contrary the swelling of the legs suddenly subsides, the difficulty of breathing encreases greatly. *A difficult and quick breathing suddenly coming on towards bed-time, depriving the patient of rest, and gradually abating in the day-time, Pise esteemed a pathognomonic in this disease.*

Anatomical injections demonstrate the pericardium to abound with innumerable arteries, through which the thin attenuated blood returning from the lungs is pushed forward by the force of the neighbouring heart, the same thing happens to all the contents of the pericardium, there is at the same time

time a great heat in those parts, which dissolves the exhaling fluid into a very fine subtile vapor; in healthy animals therefore we find no collection of lymph, no stagnation, or corruption. By means of this moist, warm vapor continually exhaling, the pericardium is kept free from the heart, and concretion is prevented, and the whole surface of the heart, of both auricles, of the sinuses, arteries, and veins, remains moveable, capable of extension, moist, and fit to reabsorb the perspirable fluid; and the callosity and attrition of the parts is prevented by the great and perpetual motion of the heart. Certainly if the great causes of secretion exist here, we shall find the aptness for reabsorption not less, for the warm exhaling vapor acts with considerable force on the whole concave surface of the pericardium and the convex surface of the heart and both the au-

ricles; the veins of the heart are entirely empty during its systole, and are therefore in the instant after bibulous and most fit to reabsorb whatever is excreted by the arteries. It is not true as it was formerly believed that the pericardium contained a fluid in its cavity in order to lubricate the heart and temperate its heat, for such a liquor is only found in the body when it is grown cold after death.—In living animals, suddenly dissected, we find only a thin exhaling vapor provided the subject be sound and in health.

The pericardium has sometimes been found dropfical alone, sometimes it has accompanied a dropsy of the breast. But it is not so easy a matter to form a certain diagnostic, to judge whether there be a dropsy of the pericardium; and this because, the disease agrees in many circumstances with a dropsy of the

the breast, and with disorders of the lungs and heart, polypuses, &c. the symptoms therefore observed in the life-time of the patient cannot so easily be ascribed to a dropsy of the pericardium as they may be when death gives us an opportunity of examining the cause of the disorder. Besides it is certain, that in the beginning of the disease when the pericardium is but slightly distended, less troublesome symptoms arise, as when it becomes more and more turgid with collected lymph. A sensation of oppression and straitness about the anterior part of the thorax, which is the seat of the pericardium, seems most distinctly to point out this disease. It is evident at the same time, that the lungs which are nigh the pericardium, must be compressed whenever this happens to swell with water, respiration will be consequently much impeded,

and a dry troublesome cough will frequently return; and as the pericardium not only lies close upon the tendinous part of the diaphragm, but adheres firmly to it, in that part of it which is nearest to the inferior flat part of the heart, it is very probable that the pericardium when distended with water, will obstruct the motion of the diaphragm greatly, and so it will that of the heart, and occasion violent palpitation, an unequal pulse, syncope, and almost suffocation. By the unanimous consent of the best approved writers, it is universally allowed that it is a very difficult matter to distinguish a dropsy of the pericardium from one in the breast.—*Senac* gives us one symptom, which he seems to think a very sure one, viz. *An undulatory motion perceivable between the third, fourth, and fifth ribs when the heart palpitates.*—

A drop-

A dropsy of the chest has its seat principally in three cavities, the pericardium, and the right and left cavity of the breast—the *paracentesis* does not remove the cause of this disease, but it frees the patient from the danger of immediate suffocation, and gives time to the physician to attack the disease by suitable medicines. It prolongs life by being frequently repeated and renders it more supportable, even when it is beyond the reach of art to remove the causes of this disease. It is not therefore right totally to condemn this operation in the thorax. For though *La Motte* and some others have positively asserted that all dropfies of the breast are mortal and entirely disapprove of the *paracentesis*—we find *Hippocrates* advises this method, and we may conclude from his expressions that some of his patients recovered—and it is very certain that, unless the water
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has remained so long as to corrode the viscera, &c. this operation has been performed by the ancient as well as modern physicians with good success.

Hippocrates describes this sort of dropsy and says that it happens chiefly when any person in hot weather, urged by vehement thirst, drinks plentifully of cold water, and the lungs are filled and discharge the water on the breast.—Then comes on a dry cough, the fauces grow rough, then ensue rigors, fevers and orthopnea, the body grows bulky, the feet swell; the symptoms he observes resemble those of an empyema, but less violent in degree, and of longer duration—he adds that in some patients, the belly, the scrotum, and the face are swelled, but says this only happens, *si tempus sectionis praterieris*, if you delay the puncture too long.—We are however to observe that he never let out the water all at once but

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at different times—though this holds not at present, for we find the viscera may be so well sustained by a proper bandage, as to maintain an equable pressure, and so the water may be very safely drawn off—there is much more danger in doing it at several times, for the air may gain admittance into the cavity, and hasten the putrefaction of the extravasated fluid.

Less danger is to be apprehended when we draw off all the water at once in a dropsy of the chest, than in any other dropical complaint, as the lungs are thereby freed from the load of the water which oppresses them, and are expanded by the air drawn in by respiration, and fill the whole cavity of the breast when thus emptied of the water; provided therefore the lungs be sound, the water may be safely enough drawn off.

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Mr. *Du Verney* gives us the history of a woman, who had a low and unequal pulse, and a great difficulty of breathing, and had an ascites as well as a dropsy of the breast—having first of all emptied the abdomen of the contained water by tapping, he some few days after performed the operation of the paracentesis in the breast between the second and third spurious rib, as near to the spine as it was possible; by this method he drew off the water with such good success, as enabled the patient to breathe with great ease and freedom, and in a month after to return to her usual employment. *Bianchi* also tells us of the same operation boldly and successfully performed upon a stout young man, in a recent dropsy of the breast—but he confesses at the same time, that he has not often chose to venture upon it.

Nor

Nor is *Bianchi* alone apprehensive in this matter—*Senac* complains that almost all physicians despair of persons unhappily labouring under a dropsy of the breast, though his own experience and observation convinced him how usefully the operation might be attempted. A person who had been cured of a pleurisy, still continued to be so oppressed in his breathing, that he was obliged to be kept in an erect posture, the disorder encreased upon him so much that there was great danger of suffocation—the thorax was punctured, and six pints of a yellow transparent water were drawn off; the discharge continued for some days, and in about a month's time he was so perfectly cured, as to be in a condition to attend the king at a hunting match on a swift horse. We should be very cautious how we positively foretell what fluid will come away upon piercing

piercing into the thorax, more especially if inflammatory disorders have preceded the dropsy of the breast.

A dropsy of the lungs themselves is a very surprising disorder, and not very easy to be discovered. This viscous it is well known consists of veins and arteries, and of air-vessels also. Watery serum cannot well be collected in veins and arteries, through which the fluids are continually propelled by the force of the neighbouring heart, nor in the air-vessels, because when once the humors begin to accumulate in them, a cough would immediately expel them, or if that did not succeed, the patient would no doubt be suffocated.—Anatomy demonstrates that these three kinds of vessels are joined by a sufficiently conspicuous cellular membrane, which admits of no fat—and in this membrane extravasated lymph may be collected, as well as in any other part
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of the body, and produce a real dropfy of the lungs, especially when the thin vapors which the arteries perpetually exhale, are not again reabsorbed into the blood, by whatever cause this may be occasioned.—The lymph thus distending the cellular membrane may form tumors of various sizes, watery vomicae, and hydatides, and by compressing the adjacent vessels, and particularly the membranous extremities of the bronchia, disturb the action of the lungs in different manners. Neither will this appear wonderful, if we reflect that purulent vomicas are formed in this very cellular membrane.

Albertini formed his diagnostic of an œdema of the lungs where-ever he observed an œdematous swelling of the external parts attended with a difficulty of breathing in the very beginning, this is farther confirmed by the testimony of *Hippocrates*, who tells us that

that respiration will be more impeded by a small quantity of serum collected in the interstices of the lungs themselves, than by a greater, accumulated the cavity of the breast. *Albertini* farther observes that the water is more easily drawn off from the lungs than it is from the cavity of the breast; he had seen many patients who from various causes suddenly swelled all over, more especially in the extreme parts, attended with a great difficulty of breathing, who nevertheless were recovered with ease by gentle hydragogues, diuretics, &c.—he concluded thence that their asthmatical symptoms certainly arose from a dropsy of the lungs. Doctor *Simpson* observes that he always suspected a dropsy of the lungs, if the face became turgid, or that the ankles swelled, and was attended with a difficulty of breathing, especially too if the pulse was so depressed

pressed as scarcely to be felt. He happily cured a woman, who seemed to be in great danger of instant suffocation, by giving her calomel. Certainly, if we consider that the veins of the lungs are most freely emptied during the diastole of the heart, and that there is a great heat and a brisk circulation there, of the fluids, we shall have great reason to expect a reabsorption of the extravasated humors, particularly if hydragogues, &c. have been prudently administered at first—hence *Albertini* saw diuretics, purging and even bleeding of use in this case.——

Maloet relates a very remarkable case with respect to this disease. A soldier was very grievously afflicted with an asthma attended with a slow fever, he could neither lie on his back or either side without the greatest pain and uneasiness, and was therefore obliged to be kept in an erect posture—

his arms, hands, legs and feet were œdematous—hence this ingenious physician suspected a dropsy of the chest; but as upon the nicest examination, no fluctuation could be perceived, nor had the patient ever discovered any thing of it himself, and as no other symptoms which usually accompany this disorder appeared, the doctor gave up his opinion. The unhappy sufferer found little or no relief from the medicines directed for him, and after, lingering for two years, died. Upon opening his body, no extravasated serum was found in the cavity of the thorax, but a watery vomica in each lobe of the lungs, containing each about six ounces of clear transparent serum; and this was enclosed in a particular cyst, whose sides were of the thickness of a geometrical line, composed of different lamellæ lying one upon another, and in which there was
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not the least appearance of either fibre, vessel, or gland; yet were they notwithstanding very capable of a longitudinal distention, and contraction by their own elastic power—but when they were roughly rubbed with the fingers, these membranes became a perfect mucus.—It is very judiciously observed at the same time, that the extravasated serum was not lodged in the bronchia, but in the cellular membrane which fills up the spaces between the greater and smaller lobes of the lungs.

This same writer seems to think that the lamellated membranes which form these bags, were not of an organical structure, but were formed from the contained fluid, as neither vessels nor fibres were visible in them. Very celebrated anatomists have been of the same way of thinking, and say that the substance of the cellular membrane is

not properly to be called vascular; at least that vessels have not as yet been discovered in this part; but numerous vessels are every-where disseminated all along this cellular coat, which envelopes the vessels distributed over the viscera, and every-where accompanies them.

Tumors have frequently been observed in the conspicuous and anterior part of the aspera arteria, and those too of a considerable size; which, as they were imagined to arise from any violent strainings, loud crying, or the struggles of a woman in labor, were referred to herniæ or ruptures, called bronchoceles. As the thyroid gland which in men is about four inches long, at its anterior part lies close upon the segments of the aspera arteria, and is narrower there, but wider where it covers the sides of the thyroid cartilage, it is thought to be
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the seat of these tumors. Mr. *Lalouette* was at great pains in examining the structure and use of this gland in human subjects as well as in brutes, and found the internal structure to consist of numberless, round, transparent corpuscles, which upon incision yielded a yellow fluid of a very viscid nature, which however soon disappeared; making a slight wound with the point of a lancet, he blew air into it with a pipe, upon which the thyroid gland swelled considerably, and he plainly saw these small round bodies swell and rise, but when he blew into the arteries or veins, these bodies did not swell. In a woman with child holding in her breath in violent labor pains, he observed the left side of the thyroid gland to swell considerably, which swelling upon opening the body was found to contain air only, with but a very few drops of a yellow fluid.

Whence it seems very probable, that the air, by the woman's violent efforts retained in the aspera arteria, found a passage into the substance of this gland. As therefore very large arteries run to this gland, and veins return from it, and since it consists of various, small, hollow, round corpuscles containing a fluid, it appears almost to a certainty, that some secretion is here intended, which, if (when collected in these follicles) it be prevented from carrying off, may gradually distend them and so produce very large swellings.

Such a watery tumor is very easily to be known, and if it has not been long left to itself may be easily cured by discussion, repeated frictions, and fomentations of camphorated spirits of wine, and hydragogue purges. A decoction of briony, with an addition of wine and sal ammoniac, or even the root itself beat up into a pulp, have been

been of great use. If these swellings are so large as not to yield to those methods they may be very safely laid open, and they will generally discharge a pellucid liquor, somewhat viscid, resembling the white of an egg.—There is, perhaps, scarce any part of the body, where such tumors may not happen.—if the follicle of a gland, or one or more cells of the membrana adiposa be distended with a watery serum. There is not a cavity of the body whether great or small which does not exhale and reabsorb some humor, if therefore from any cause whatever the exhalation continuing, reabsorption is impeded, such a watery swelling must necessarily be the consequence.

The ovaries of women very frequently swell into atheromatose, steatomatous and dropfical tumors, and have been found to contain very extraordinary concretions—such as stones, hairs,

teeth, bones, and often large hydatides enclosed in peculiar membranes, and those sometimes of a most surprising magnitude.

Doctor *Douglas* dissecting the body of a woman of twenty-seven years of age, who had died three days after her labor, found the whole ovary converted into a large hydatid, which filled the whole cavity of the abdomen, compressed all the abdominal viscera, and contained above seventy pints of a viscid dark-colored humour of pretty nearly the consistence of a syrup. In the sack itself, which contained this fluid, he found many small bladders of different dimensions, distinct from each other, resembling a mucilage of quince-seeds, and coagulating on the fire like the white of an egg. This tumor had grown so amazingly in three years time; and was originally owing to a violent blow received on the left side
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of the abdomen, not long after the birth of her first child; in consequence of which she felt a great pain, which however went off in about three days—two months after she felt some slight pains in the hypogastric region on the left side, which began also to swell; the pains encreased more and more till she grew with child; during her pregnancy she felt no unusual uneasiness, only that the abdomen was more swelled than usual, and the swelling scarcely subsided at all after delivery. In a year after she became pregnant again, about the middle of that time her legs began suddenly to swell, which when rubbed, discharged a considerable quantity of water, and so it did from the skin of the abdomen especially if any little pustules happened to be scratched.—A difficulty of breathing ensued, attended with a palpitation of the heart, nor could she sleep but
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in an erect posture for fear of suffocation. She nevertheless brought forth a living child, but a great weakness, and difficulty of breathing coming on, she died three days after her delivery. But as each cavity of the thorax contained a large quantity of reddish water, and the pericardium was full of a greenish liquor, doctor *Douglas* was of opinion the cause of her death was owing to those circumstances; and that otherwise she might have lived many years, the other abdominal viscera being in a very sound state.

Such dropfical swellings sometimes grow to so large a size, as to fill up the whole cavity of the abdomen, and are then not easily distinguished from an ascites: but an incipient dropsy of the ovary may more readily be thrown from its situation in one or other side of the epigastric region, and from the circumscribed magnitude of the tumor.

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In the beginning also they perceive an obtuse pain and weight in the part affected.——Women labor under this complaint a long time, without any remarkable injury to their health; they conceive, bear children, and the abdominal viscera perform every function not being soaked in water as they are in an ascites; but suffer pressure only from the distention of the incumbent bag in which the tumor is contained. The urine is discharged freely and in sufficient quantity, which it does not do in an ascites. To these symptoms *Targioni*, a celebrated physician, reckons a swelling of the leg on the same side with the tumor, and a continual oozing of water through the pores of the skin, which he esteems almost a pathognomonic sign.

The cure is difficult, as the disorder lies often concealed—long before it can be properly distinguished and known,
and

and not till the swelling is grown to an enormous size—and as the principal hope of curing a dropsy consists in the collected lymph's being reabsorbed by the veins, and the expulsion of it from the body by urine, stool, or sweat; it will be easy to conceive that this cannot so readily happen; since the enclosing membranes are so much dilated, and the veins, every-where dispersed through them, so entirely compressed by the distending water.—Nay sometimes a scirrhous accompanies this complaint, which will still add to the difficulty of the cure. A gelatinous substance is sometimes contained in this kind of tumor, which cannot so readily be discharged through the trochar; for which reason it has been necessary to dilate the wound, in order to give it a free passage; now putrefaction soon follows an accession of air, so that part
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of the fluid passing into the abdomen corrupts, and will occasion death.

From the observations of doctor *Houstoun* as well as from other ingenious gentlemen of the faculty we find that dropsies of the ovaria are not absolutely incurable, especially where the disease has not got to a great height, and where there is no apprehension that the tumor adheres to the neighboring parts.——

It is certain however, that the paracentesis is equally safe here as in an ascites—life by this means may at least be prolonged for many years, and the patient greatly relieved, though a perfect recovery is not to be expected. Professor *Morand* affirms that he had several times performed this operation upon a woman of quality, who suffered so little from it, that she frequently went into the country the very next day after the operation, though in general

neral eighteen pints of water were taken from her at a time; neither did she die of this, but of some other disease.—

Dropsies of the womb frequently happen in consequence of miscarriage, and more especially if the placenta has been left behind, which will degenerate into a mass of hydatides.——*Ruyjsch* and *Tulpius* give several cases in proof of this remark.

If more fat be secreted into the cellular membrane than can be reabsorbed by the veins, the body will be overloaded with fat: if the fat be melted down by violent motion, by heat, or by a fever, and be reabsorbed, a sudden emaciation will follow, as we frequently observe it to do after acute diseases, When therefore the watery colluvies abounds in the body, or that the aqueous particles are not sufficiently blended with the more balsamic particles

ticles of the blood, the water will easily discharge itself into the cellular membrane, which, if it be not reabsorbed by the veins in equal proportion, will distend this cellular membrane, and occasion a general swelling of the whole body. Thus doctor *Hales* produced an artificial dropsy, by injecting warm water into the arteries of an animal through a tube of such an altitude, as that the pressure of the column of water should be nearly equal to the power with which the heart propels the blood through the vessels. But if the water be injected through the veins, the whole cellular membrane will swell dropfically, and that more easily than where the injection is attempted by the arteries—this dropsy is therefore called *anasarca*.

Frequently the feet only, or the legs and thighs swell by an anasarca, and indeed this disease generally begins by attack-

attacking the lower parts, as the water collected in the cellular membrane tends downwards by its own weight, and swells the feet constantly towards night, the which by the equable heat of the bed, and the horizontal position of the body disappears, but returns again when the patient is up, and the lower limbs remain pendent during the course of the day, and more especially if the ascent of the venous blood which is not very easily performed, be not promoted by muscular motion.

When the blood is so broken down as to distend the parts under the skin with an aqueous humor, the disease is then an anasarca.

In a leucophlegmatia a mucous viscosity rather prevails, which being spread over the whole body, is more equally dispersed. But in an anasarca the watery tumor appears first in the extremities,

inities, and then ascends gradually. The description given by *Gelsus* rather corresponds with an anasarca than a leucophlegmatia. And indeed it merits well our attention to distinguish these two diseases from each other, as they frequently require a very different method of cure. A leucophlegmatic girl is often cured by corroborants without the previous help of evacuations, which does not always succeed in a dropsy.—They are to be distinguished in the following manner; in a leucophlegmatia the whole body is soft, doughy and cold; in an anasarca the feet swell first, then the swelling ascends upwards, and the parts affected in this disease swell more than any other parts of the body; in a leucophlegmatia on the contrary every part is alike tumid, pale and relaxed. *Fernelius* reckoned this a pathognomonic symptom. *Hanc* (an-

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sarcam) a plegmatica cachexia sejungit sola magnitudo, quod tumidiorem habeat corporis vitiatam molem. Besides if the tumid parts in this sort of dropsy be pressed with the fingers they pit, and it recovers itself but slowly and gradually, for as the cells of the *membrana adiposa* communicate with each other, when a fluid is pressed out of some of them, it will pass into others, and when the pressure ceases it will return again into its former situation—but this cannot so easily happen in a *leucophlegmatia*, where the humor collected is tough and viscid, and it will therefore be more difficult for it to pass from one cell to another. This will also readily account for the swelling of the extremities, because the serum by its weight passes downward into the cells of the cellular membrane.—*Aretæus* perfectly knew this symptom of an anasarcaous dropsy, for he advises pressing the

the part here and there with the finger; for then says he *αλλακην πη τον δακτυλον ερεισης, ο χωρις γιγνεται κοιλος ες χρονον τε πηλυν μιμνει κοιλος*—if you press with the finger it pits, and remains so for a considerable time. But this observation is not quite so accurate, as it only comprehends an anasarca when attended with an ascites, which is sometimes the case; but an ascites is frequently unattended with an anasarca, in that case the abdomen is tense, nor do the integuments give way to the pressure. An anasarca may occupy the whole habit, since the cellular membrane is spread all over the body; it is obvious how difficult the cure will be under such circumstances, the whole of the blood being dissolved into a watery colluvies, which it is not in the power of human art to remove.

A true anasarca even of the pia mater has been frequently known, the cellu-

lar substance lying between that and the dura mater, being greatly distended with water; upon the first view a viscid mucus seemed to cover the pia mater; but on making a puncture into the arachnoid membrane with a lancet, there issued forth a very large quantity of a thin watery fluid, and the whole tumor subsided.

That an anasarca may be productive of many and various evils, according to the places it affects, is very obvious—I have seen a dropsy swell the eyelids to so immense a degree as to render them incapable of separation. If it attack the scrotum, the penis will be most surprisngly inflated, and the tumid præpuce so strangely twisted as to obstruct the passage of the urine, and bring on a total suppression, so that scarification has been found absolutely necessary in order to let out the water contained in the cellular membrane of
these

these parts. *Aretæus* mentions this symptom particularly.——

An anasarca however cæteris paribus is more easily cured, than other kinds of dropsy, because numerous large veins run through the cellular membrane, which may reabsorb the collected serum; besides the stagnating fluids may be put into motion by friction, and thus reabsorption be promoted; the collected lymph may also be discharged by scarification, blisters, caustics, &c.

It seems a matter of no great moment, with regard to the cure of this disease, whether the water be lodged between the duplicature of the peritonæum or between that and the aponeurosis — it will however be always necessary to know whether the water be contained in the cavity of the abdomen or not.——

Doctor *Mead* mentions three species of an ascites; the first, when water is

lodged in the cavity of the abdomen; the second, when the water is extravasated between the aponeurosis of the transverse muscles and the peritonæum; and the third, when the fluid falling between the coats of the peritonæum, distends them, and so forms a large receptacle for itself.

A dropsy may possibly have its seat between the duplicature of the peritonæum, though this very rarely happens; nor is it an easy matter to distinguish whether the water be lodged between the peritonæum and the aponeurosis of the abdominal muscles, or in the duplicature of the peritonæum, because the membranes are much injured by their soaking in the water; neither is there always sufficient time allowed to those who dissect the bodies of such as have died under this disease, to make an accurate observation and examine every particular.

Lifter

Lifter has described the symptoms of an ascites of the peritonæum from his observations upon a lady he attended, and who died of this dropsy. First, says he, the beginning of this disease is gradual, and its encrease slow—this is principally to be remarked in the first stages.—

Secondly, the belly does not swell equally alike all over, as when the water is lodged in the cavity of the abdomen; but the tumor is somewhat circumscribed, towards the anterior part of the belly especially; nor is its form much altered, by the different positions of the body; by this very circumstance, it is distinguishable from that species of dropical swelling, occasioned by water collected in the cavity of the abdomen, for in that case, unless the abdomen be overstretched, the swelling gives way, as the patient moves from one side to the other. It

is also to be distinguished from a beginning tumor of the ovary, which occupies the lower lateral region of the abdomen, which is for the most part attended with an obtuse pain.

Thirdly, No fluctuation is perceived in some part of the abdomen, out of the limits of the tumor.

Fourthly, The lower extremities do not swell, at least not very perceptibly, and that also very leisurely.

Fifthly, The patients bear the disorder long, without any visible injury to the functions of the body; nor do they seem scarce to suffer any other inconvenience than what just arises from the size and weight of the tumor gradually encreasing.

When the water is lodged out of the cavity of the abdomen, the bowels are not injured by it, the patient therefore can support the disease longer, and in every other respect enjoy tolerable health;

health; and observations greatly to be relied upon, convince us that in these cases a good complexion, a tolerably free secretion of urine, a good appetite and digestion, and regular alvine excretions have remained for many years; from these appearances also, we may deduce diagnostics by which to distinguish this disease.

When the abdomen begins to fill with water, the swelling is first perceived about the flanks, and as the belly enlarges, there will necessarily ensue a greater pressure in the lower parts, and the iliac veins of course be compressed; and hence we observe the legs and thighs oftenest to swell in an ascites—whereas if the water is collected between the muscles of the abdomen and the peritonæum, or in its duplicature, these veins are not affected, and therefore the extremities are little or not at all swelled; or if they be, it is after a
long

long time, when the swelling in the abdomen is so much encreased as to compress the viscera.—

Nuck who very attentively examined the lymphatics, asserts that they may in a morbid state become hydatids.—*Proffessor Morand* who embraces the same opinion very ingeniously illustrates and confirms it, Hydatids most generally are found at their first origination, under the external coats of the viscera, now we likewise observe a vast number of lymphatics in this place.—The hydatids contain a lymph, similar to that which flows through the lymphatics; the lymphatic vessels through their whole length appear as it were knotty, while their cavity every-where is distinguished by two opposite valves, which are so constructed, as to admit an easy passage to the lymph flowing from a narrower to a broader part of those vessels, but obstructs its return
from

from a wider into a narrower part of them.——It is farther observable that the lymphatics are most contracted where they are nearest to a valve—the valves themselves, on the side towards the wider part of the lymphatic, are concave, and convex on the other side. If now from any cause, these tender lymphatics be compressed, or any obstruction happen in them, which may prevent a free discharge of the lymph into the larger veins, the intermediate *internodial* spaces will swell, the concave side of the valves will be distended by the incumbent fluid; the double valves lying close upon each other, being dilated by the pressure and plastic disposition of the lymph, may unite and adhere together, and thus, all that part of the lymphatic vessels, which lies between the double valves, will be distended into an hydatid, while the lymph perpetually is pressing from behind,

hind, before that the valves are become perfectly united together.—

Bianchi is not inclined to refer the original of those hydatids to a disease of the lymphatics, but rather to the membrane which envelopes the viscera, being distended and swelled at various distances by the extravasated serous fluid.

It will always be absolutely necessary to a physician to be thoroughly acquainted whether the swelling of the abdomen be caused by the water floating in its cavity, or by an encysted dropfy,—and this must be learnt from the attending symptoms—for the abdomen has been found greatly swelled, though no water has been found in its cavity, or in the duplicature of the peritonæum, or between that and the abdominal muscles, but the whole tumor proceeded from a rarefied vapor; which disease is generally known by
the

the name of *tympany*. And here again caution is requisite not to mistake this distemper for an ascites,

In a tympany the abdomen is never distended to so enormous a size as in an ascites; the abdomen towards its side is more flat and compressed, and more prominent before, an evident fluctuation is not perceived; on striking the belly, it sounds, but very hollow and dull like a wetted or unbraced drum.—Professor *Combalusier* defines a tympany thus, It is a bag-like tumor of the abdomen, shining, not sensibly heavy, constantly prominent upwards towards the navel, sounding when it is struck, and when pressed immediately rises again, generally attended with eructations, borborygms, and an obstinate constipation of the bowels arising from flatulency.—The skin of the abdomen is white, tense and elastic; that the form of the belly never alters
upon

upon shifting the posture, and the pulse in general is harder and fuller than in an ascites, in which it is smaller and more languid—the belly when struck sounds like a drum, and the patient appearing light when weighed, are as it were in some measure pathognomonic—in an ascites the patients weigh heavy, because of the large quantity of water lodged in the cavity.

It was formerly a received notion, that a tympany proceeded from air lodged in the cavity of the abdomen; but, though this may sometimes be the case, yet we are taught by anatomical dissection, that this seldom happens, and that the cause is chiefly in the stomach and intestines when enormously distended by rarefied air lodged in their cavities. Professor *Littre* performed the operation of the paracentesis on the bodies of several persons who died of this distemper; the abdomen did not subside,

subside, nor did the flame of the candle, when applied to the orifice of the canula, seem to be disturbed, though the abdomen was pressed on all sides—he always found the stomach and intestines especially the large ones distended, inasmuch that the cæcum and colon were sometimes as big as a man's thigh—hence he rationally concluded that the tympany was not occasioned by air collected in the hollow part of the abdomen, but by the inflation of the stomach and intestines. This clears some passages of *Hippocrates* which before seemed somewhat obscure:—

*“ They who are afflicted with gripings
“ and pains about the navel, and a pain
“ of the loins, which are not removed by
“ purges, or any other methods, generally
“ fall into a dry dropsy.”*

Now we know the mesentery and mesocolon are connected with the loins; hence it is evident why a pain in the loins, not to
be

be removed by medicine; may produce this disease.——

Professor *Littre* very clearly explains the manner in which the stomach and intestines may be so inflated with air, as to produce a tympany. The œsophagus freely admits the air, being always open at the upper end; besides this, it transmits air into the stomach along with the food; perhaps also, when the stomach itself is empty and suspended from both its orifices, the upper orifice of the stomach not being quite closed, may give a free passage to the air, which will therefore move pretty freely in the cavity of the stomach and bowels. Physiology informs us of what use the air is in digestion.—The air indeed is expanded by the inward heat of the body; but as the alimentary tube is muscular, and consists of very strong membranes, it resists its dilatation, and presses together
the

the contents of its cavity. If the abdomen of a living animal be suddenly cut open, the intestines appear, solid, round, and scarce seem to have any cavity. In a dead body, the intestina tenuia appear very membranous, and to have a considerable cavity, because after death this muscular force, which resisted the distending air ceases—and as the intestines remain warm for some hours after death, they will be distended by the rarefied air, since they have lost their contractile muscular power.

Now *Littre* considered the rarefied air in the alimentary tube distending the bowels, and their contractile force, as two opposite powers. In health the contractile force of the intestines prevails, we cannot otherwise account, how six pints or more of medicated waters should be drank, and the whole be reabsorbed by the intestines, with-

out any discharge of it by stools. But if there be too great a quantity of air pent up in the alimentary tube, or that it be too much rarefied, it will then be expelled by the contractile power of the stomach and intestines, and so pass upwards by eructations, or downwards by flatus.—Hence the stomach which so often receives crude and flatulent food, and fermentative liquors, nay is frequently overcharged with them, expels the too copious or too rarefied air, generated by such meats and drinks, by the superior orifice of the œsophagus, with an eructation.—But in the *intestina crassa*, in which the greatest part of the injected food, deprived of all its nutritious juices, is collected, and mixed together with all the secreted humors of the body through the whole alimentary tube, there we shall find manifest tokens of putrefaction—
hence

hence these parts are most frequently known to be the seat of flatulencies.

The *intestina crassa* are of a larger diameter than the *tenuia*, have stronger coats, and a triple ligament, which resists any immoderate distension, and considerably strengthens them through the whole length of their canal. And hence the rectum when irritated by rarefied air, resists its effort, and contracting itself, expels the flatus.—

And it is evident that the power with which it contracts itself is considerable, when we consider that flatus and even the *fæces* are sometimes forcibly and violently discharged, even against the efforts of strong and robust men.

If now, from any cause, the contractile force of the intestines should be weakened, they may yield to the expanding air, and so produce a tympany; for which reason we frequently observe this disease, when the solids

have been debilitated by long and tedious disorders, as also after frequent returns of the iliac passion.—Flatus and borborygms give hopes of cure in a tympany, because they are signs, that the intestines have not quite lost, or have recovered their tone.—

We read a remarkable case to this purpose, in the Medical Essays:—A girl twenty-two years old, after a tertian ague, which had been injudiciously treated, and had lasted seven months, took some doses of the cortex; after which she complained of acute pains in the loins and abdomen, which generally began near the right os ilii; thence they moved upwards and crossing the stomach transversely passed to the left side; they were attended with griping and borborygms, the abdomen swelled, and sometimes rose to an extraordinary bulk; then again, though no evacuations had preceded, subsided gradually,

gradually, though not entirely—the following winter she seemed free for some time of these complaints; but they returned in the beginning of the spring, the same symptoms appeared, and the abdomen swelled; and that to such a degree, that there were some apprehensions of its bursting; at last however the tumor again gradually grew less, without the intervention of any evacuation; at that time something like balls branching out in different places were perceivable upon touching the belly, especially on either side of the abdomen; her appetite was good, she had no thirst, and the urine was in proportionate quantity to what she drank. Purges were administered, and the fæces discharged, but scarce any flatus attended them, and little alteration was to be perceived in the swelling of the abdomen.—Various remedies both internal as well as external

were tried to very little effect; the belly still continued costive, and no flatus were discharged. At length she perceived rumblings and borborygms in her belly; some blood was discharged by the anus, (she had been subject formerly to an hæmorrhoidal flux) and at length she for two days successively broke wind both upwards and downwards so violently, that the patients in the same hospital could scarce bear the place—the abdomen grew less and softer to the touch; the explosion of flatus still held on, and though the swelling returned from time to time, she recovered so well by the use of corroborants, as to be able to go to hard work, and she continued in health afterwards, though she generally went bare-footed, laboured hard, and lived on very coarse food.—This surprising disease seems to have been a tympany, in which the colon was distended through

through its whole extent. The hard tumors proceeded no doubt from the dry hard fæces; for had they been scirrhi, so easy a cure would not have happened. When the distended fibres of the intestines had recovered their tone, the wind was forcibly expelled, the abdomen subsided, and the retained fæces were carried off by purges and clysters, and health was the consequence.

Heister declares an abdominal tympany to be a very rare case—and that though in the space of forty-six years, he had dissected many bodies of such as have died of a tympany, he never yet found any air in the cavity of the abdomen, but that it was always lodged in the distended intestines.

Air certainly exists in an incredible quantity in the solids and fluids of the body, but so long as the air remains involved, and coheres with the consti-

tuent parts of the body, divided as it were with the elements of these parts, it is not elastic; but when by encrease of heat, or by the intestine motion of fermentation and putrefaction, that nexus and cohesion of the air with our solids and fluids is broken, it then regains its usual elasticity, and becomes dilatable on the least encrease of heat—thus we see the bodies of drowned people, after having long lain in the water, emerge again, and float upon the surface. — When the air penetrates from the mortified intestines in the cavity of the abdomen it immediately swells, this is seen in those who are dying in a *passio iliaca*.

The intestinal tympany is easily to be distinguished from a tympany of the abdomen. — If after gripings of the belly and a pain in the loins, the abdomen be inflated, if there be frequent borborygms, and the belly be
costive,

costive, we may suspect a tympany of the intestines : if these be wanting, and the inflated abdomen swells suddenly, we have room to imagine it an abdominal tympany, and in this case if you strike the belly the sound will be stronger; and this symptom will be of greater consequence, if such causes have preceded, as may give reason to suspect a putrefaction or a mortification of the bowels.

The dropfy of the testicles, may be divided into three species; a dropfy of the scrotum; a dropfy of the bag formed from the production of the peritonæum in a true hernia; a dropfy of the involucrum vaginale of the testicle—they are all called by one common name *υδροκηλαι* hydroceles.

The first is properly an anasarca of the scrotum, or a collection of water in the cellular membrane of this part.—It appears from the observations of that accurate anatomist *Winslow* that a
confi-

considerable cellular membrane lies between the tunica vaginalis and the dartos muscle; the collected fluid therefore will be more likely to produce an anasarca in this part, as this cellular membrane has a communication with another similar membrane placed between the skin and the dartos muscle; this slender muscle will scarce appear between these distended cellular membranes, neither does the dartos muscle seem of so firm a texture, as to admit water to lodge itself between it and the tunica vaginalis, as in a hollow bag. The ingenious Mr. *Sharp's* observations on this subject well deserve to be read with attention.——That gentleman has excellently remarked, that an ascites alone will not fill the scrotum with water, and he appeals to all practitioners, whether they ever saw any persons in an ascites, who had an hydrocele at the same time, unless they

they had a rupture before. I confess that I have seen many persons in an ascites, and although the abdomen was greatly distended with water, I never found the water made itself a passage into the scrotum, unless a hernia had preceded.

We should be very careful how we distinguish other tumors from an hydrocele, and this is not difficult to do, if we are but careful and attentive: for inflammatory tumors of these parts are easily known by the heat, redness, pain and fevers accompanying them. Purulent and ichorous tumors are distinguished by inflammation or other causes which have preceded, and require a discharge of the collected humor as well as the hydrocele, lest the mischief may be encreased by delay. Sometimes also the testicle may be swelled from a bruise or any other cause, and becomes hard and rough and encreases

to a great size—this disease is called a *sarcocele*; which however is very easily to be known from an *hydrocele* by the bare touch.—Sometimes when the testicle is thus disordered, an *hydrocele* may follow, which if it grow large, may hide the testicle, and evade the feeling—then the disorder is compound, and the history of the disease will shew, whether the swelling of the testicle preceded the *hydrocele*. This disease is then only known when it manifests itself by a swelling; for it cannot well be distinguished in the very beginning, while only a small quantity of a serous lymph is collected in the *tunica vaginalis*; for this tumor is not elastic nor yields to the pressure of the finger and rises again, as in an *anasarca* of the *scrotum*, because the fluid is not lodged in the cellular membrane but in the *tunica vaginalis* of the testicle. And this will be still more evident, if the

the symptoms of the first and second species of the hydrocele are wanting. As the cavity of the tunica vaginalis is round, it will retain its figure when dilated; but as it becomes narrower towards the upper part, it may then, when it is sufficiently filled, be of an oval form.—Although it may so happen, that upon an encrease of the water, the upper part of it may be so dilated, as to retain its globular figure; but as the tunica vaginalis, and the integument of the scrotum when greatly distended, are rendered thinner by this distension, the bag in which the collected fluid is lodged, will be more transparent, especially if the scrotum be cautiously drawn up with a soft broad piece of linen, so as to encrease the tension. The water contained in such an hydrocele is most commonly clear and limpid, the whole of the tumors therefore will be transparent, and

a can-

a candle being held on the opposite side, will give a fair opportunity of seeing the testicle lodged in the middle of the tumor, and so prevent its being injured in the operation of the paracentesis by the point of the trochar.—

Celsus knew this disease perfectly well, “the swelling (says he) is soft if there be not too much water; but if that encreases to a larger quantity, it resists the touch like a bladder quite filled up with water and tied down very hard—the veins of the scrotum are also much inflated, and if we press the part with the finger the humor gives way, and fluctuating raises that part which was not pressed upon, and it is visible through the scrotum, as if it were in a case of glass or horn, and is without pain in its own proper substance.”

It is to be observed however that the fluid collected in the tunica vaginalis is sometimes turbid and bloody; which

is usual in an hydrocele of long standing — great caution is here necessary how the operation is to be performed.——

We are taught by physiology, that all the lymph which returns from any part of the body whatever, passes from the lymphatic vessels into the sanguiferous veins, either directly, or indirectly through the cisterna lumbaris, ductus thoracicus, and so on to the subclavian.——If therefore a free passage be denied by any cause to the lymph through any of the larger vessels, it will stagnate and distend its own vessels, and the smallest absorbent veins will not be able to disengage themselves of their contents; wherefore reabsorption of the exhaling vessels will be impeded, while the exhalation from the arteries will at the same time be continued into the same cavities, and a dropsy be the consequence. *Lower* has plainly proved
this

this by evident experiments made upon living animals. Having perforated into the chest of a large mastiff dog, he tied the vena cava, then stitched up the wound; the animal grew immediately faint, and died in a very few hours after. On dissecting the dog, a large quantity of serum was found floating in his abdomen, just as if he had long labored under an ascites. He made a very tight ligature upon the jugular veins of another dog; some few hours after, all the parts above the ligature swelled amazingly, and in two days the dog perished just as if he had been suffocated by an angina; he found all the muscles and glands above the ligature greatly distended with a limpid and transparent serum. Here we see an ascites produced in a few hours, from the venous blood being obstructed in its motion. In the body of a girl of eight years old, who died lethargic,
and

and greatly oppressed in her breathing; from a collection of water in the ventricles of the brain, the cavity of the breast was found full of a watery serum somewhat tinged with blood, but a perfectly clear and limpid fluid was observed in the brain; *Lamotte*, who had opened the child, upon freeing the breast from the contained humor, found the lungs entirely sound, but discovered two abscesses, and two hard fleshy tumors as big as a pigeon's egg, which compressed the descending trunk of the vena cava; which were indisputably the occasion of this accumulation of watery serum in the head and breast.

In the beginning of a dropsy the feet swell first, because the blood returns with great difficulty from the extremities upwards, especially in those who live a sedentary life, and seldom or ever use much exercise—hence tall men are

supposed to be more subject to this disorder than those of lower stature—for in tall men the blood has a long way to ascend against the resisting effort of gravitation, and therefore *cæteris paribus*, their feet will more easily swell. Professor *Sauvage* has very well remarked that the fluids in a healthy state have a certain degree of viscosity, by which they adhere to the sides of the vessels, and by this means the power of gravity is lessened, when they are to ascend almost perpendicularly. If now such a cachexy happens, as that no more good blood can be produced, and the fluids degenerate into a watery thinness, this adhesion to the sides of the vessel is much lessened, the power of gravity continuing the same notwithstanding; the extremities will therefore very easily swell.——

Hence we may also learn why a dropsy is to be feared, if any obstruction

struction happens near the right venous sinus, in the pulmonary artery, or in the lungs themselves; so as to prevent the free passage of the blood through that viscus; for in that case the two trunks of the vena cava cannot discharge their contents freely, whence the motion of the venous blood will be greatly retarded. Thus we frequently see persons afflicted with polypous conerctions about the heart and the larger vessels become and die dropfical; for the same reason asthmatical people are subject to the like bad consequences. This *Arétæus* has taken notice of, and so does *Aetius*——: the ancients imagined that dropfies were occasioned by diseases of the liver, and indeed it is not to be wondered that they thought so, since this viscus is found so frequently impaired in subjects who have died dropfical. The ascending trunk of the vena cava passes

through the liver, and the vena portarum is distributed through the whole substance of it, any tumor therefore in that viscus may obstruct a free return to the venous blood; but once the obstruction is removed, and that the blood moves freely through the veins, the extravasated fluid may be reabsorbed, and so be carried off by the proper channels.—Thus *Hippocrates* says, “a dropsy is cured when the water passes through the veins into the belly.”

If the free circulation of the venous blood be obstructed, the lymphatics remain distended, if this distention be encreased they may burst, and discharge their contained fluid into the cavities of the body.—Many authors, indeed, have denied that this is a cause of the dropsy, others think it is very seldom if ever the cause of this distemper.

What-

Whatever weakens the tone of the vessels disposes the body to a dropsy—for whenever the strength of the vessels is weakened they will act less powerfully upon the contained fluids, and be incapable of converting the chyle into a good and firm-textured blood—the blood consequently loses of its red color, and as this part is the most dense of all, the whole mass of humors will degenerate and become much attenuated and impoverished, and a cachexy will ensue: and if these too greatly attenuated fluids fly off, the body will consume in consequence of a marasmus; if they remain in the body, they will be accumulated in the cavities, and so bring on a leucophlegmatia and a dropsy.

Drinking large draughts of cold water when a person is overtired and heated is no unfrequent cause of a dropsy, especially if after it he lies down to repose himself without being

well covered and defended from the air; for in that case no sweat follows, the urine is discharged in small quantities, and all the water remains mixed with the blood.——Now it is evident from Mr. Hale's experiments, that a large quantity of water being suddenly thrown in upon the blood does not pass from the arteries into the veins, but is deposited by the smaller secretory ramifications in the cavities of the body, and soon brings on a universal dropsy. The same happens to those unfortunate people, who lie down immediately after having swilled down large draughts of cold water—for if they continued to move about briskly, the muscles acting powerfully and continually would prevent the water from collecting in the cellular membrane, which every-where covers the muscles, and fills up their intermediate spaces: besides as the body grows warm by exercise and motion,
the

the water that is drank is kept moving on, and passes off either by urine or sweat or by both; and if it oppresses the stomach is discharged by vomit or stool. *Actius* and *Aretaeus* expressly mention this in their description of the causes of a dropsy.

The texture of the omentum is so contrived as to be entirely fitted for the reabsorbing the lymph, and to mix it so reabsorbed by means of the two epiploic veins with the blood of the vena portarum before it passes into the liver——if therefore the omentum be impaired or in a state of disease, this reabsorption will be impeded, and bring on a dropsy.——

A difficulty of breathing is very certainly a bad symptom in a dropsy——because it either happens in consequence of too great a fulness of the abdomen, or it argues some reason to suspect water to be lodged in the breast or
O 4 lungs.

lungs.—A cough here is also for the same reasons accounted an ugly symptom.—

When the watery serum is collected in the cavities of the body, it returns not by the veins, neither does it again mix with the blood.—The blood consequently will be daily more and more deprived of its most fluid parts, and be rendered less capable of circulating freely through the vessels. Hence, the secretion of the finer juices will be diminished, and the patient becomes dry and thirsty, and the tongue and palate almost parched up with heat, and while the belly only swells to an enormous size, the rest of the body becomes emaciated with a marasmus. Neither will copious drinking diminish the thirst, because the liquids drank will not easily unite with the already too-much exsiccated blood, but soon escape from the vessels into the dilated cavities

cavities of the body, the skin no longer perspires, and the urine is discharged in very small quantity; thus the liquor taken inwardly remains there and encreases the dropfical complaint, but does not stay in the vessels through which the fluids circulate:

Quo plus sunt potæ, plus sitiuntur, aquæ.

Large draughts of liquids but encrease the fire,

The more they drink, the more they still desire.

The collected lymph, by long stagnation, becomes salt and brackish, more and more acrid, and almost alcalious. Besides, dropfical persons are most generally costive, the excrements therefore by long retention in the *primæ viæ* become putrid.—

Dropfical

Dropfical patients are commonly heavy and drowfy; for they are overwhelmed with the mass of water, their strength is much impaired, and they are scarce able to move or bear their unwieldy body. Besides as plenty of good animal spirits cannot be secreted in the brain from the blood, which is so much vitiated, we shall have another reason why the body feels so heavy in this disease; and why the patient becomes inactive and indolent—sometimes water is found in the ventricles of the brain, and the patient dies lethargic.—

When the abdomen is distended by a prodigious quantity of water, the intestines must necessarily be compressed, and the fæces be accumulated in the intestina crassa; they will become hard, and consequently be excreted with difficulty. Moreover we may consider that the viscera in this case, which

which are destined to secrete the chyle, are scirrhus and loaded with obstinate obstructions; now all these viscera bear a part in forming good bile, whose function it is to promote the alvine excretions—if the bile therefore be deficient in quantity, or if from the ill state of the viscera it wants its due qualities, it is easy to conceive that it will produce costiveness.—This is excellently well described by *Hippocrates* in his *coacæ prænotiones*.

Dropfical persons upon this account frequently require a double or triple dose of cathartic medicines in order to procure stools.

Although in the beginning of a dropsy, the whole body feels cold and is languid, and that it appears to be a disease entirely contrary to a fever, yet we observe a fever frequently accompanies the disease if it be of long standing;

standing; partly from the tendency to a putrefaction in the stagnating fluids, and partly because the blood being deprived of its diluting lymph, escaping from its proper vessels, is collected in the cavities of the body. "*Fere in totum plurimi ex hydropicis febriunt.*" Almost all dropfical persons, says *Aetius*, are feverish."

That the fluids may pass through the extremities of the small arterial vessels of the skin, it is necessary that the skin should be soft and naturally warm; now in dropfical people, the swelled legs and thighs are as cold as marble, while the parts not immediately affected by the dropfical swelling, are quite thin and emaciated. We entertain very favorable hopes, if in dropfical patients we can obtain sweat either spontaneously or by art, because it is a sign that the extravasated serum is reabsorbed and circulates through
the

the vessels, and is exhaled by the pores of the skin from the body. Unless that which is wasted both in the fluids and solids by the very actions of the body in health can be restored again by good and wholesome nourishment, a true marasmus must necessarily ensue—the very best of food requires the action of all the viscera and vessels, as well as a large plenty of pre-existing sound juices in the body, so that what is wasted may be repaired. Now the whole blood in a dropsy is depraved, and the viscera so compressed by the water, that they cannot perform their functions, and the more distended and turgid the dropfical parts are, the more defective will nutrition be in the parts which are not swelled.

It is well known that our fluids have a tendency to putrefaction; but so long as they circulate freely through the vessels, and that the corruptible particles

ticles are excreted from the body, putrefaction will be prevented.——But when once they begin to stagnate long in the cavities of the body, putrefaction is to be much feared, which will however be the longer before it begins, provided they are close and shut up, but will soon happen when once free access be given to the air. It is perhaps for this reason that drawing away the water by degrees, has so often been attended with bad success; for the air getting admission, much more readily accelerates putrefaction.——We often observe water taken away by tapping, shews no sign of putridity, but when long exposed to the open air, has smelt abominably. However though water will grow putrid in any cavity of the body, yet it will more readily happen in an ascites than in other dropsies, for from the newly opened abdomen of an healthy person, we see a vapor reeking forth

forth of the smell of urine, with a disagreeable stench; the abdominal viscera are perpetually agitated by the motion of respiration; the bile which approaches nearest to putrefaction of all the fluids, transudes in such a manner, as to tinge all the parts near to the gall-bladder with yellow, as it has been frequently observed in dissection of dead bodies, the fœces retained long in the intestina crassa exhale a putrid steam.——All these concurring causes make the waters putrefy sooner, which when it once happens, will consume the viscera perpetually soaking in such a corrupted fluid, into a putrid colluvies——whence, it has been always esteemed a bad omen, if in tapping the water comes out putrid, or so to affect the fingers, and soften the skin as alkaline lees are apt to do.——

Bleeding at the nose is a dangerous symptom, as it diminishes the quantity

tity of blood, already too small, —

We should be cautious in the use of cordials not too suddenly or all at once to encrease the circulation, for the dropsy grows too fast in its own nature, and the abdomen swells more and more in an ascites, while the arteries continue to discharge the serous lymph, and the veins do not at the same time reabsorb it—if therefore the motion of the fluids be too violently or too instantaneously accelerated, and this more particularly, when they are too much attenuated, they might all be discharged into the cavities of the dilated abdomen, and all the vessels of the whole body would entirely collapse, an event which would be of the most fatal consequence. *Trallian* observes, “*nam calefacientia nimium si universa ac una vice assumuntur, totum potius habitum colliquant, quam abundantem humorem evacuent.*”

Besides,

Besides, when such juices as have hitherto been stagnating are too suddenly put into motion; such a sudden fulness might ensue, and the lungs be so oppressed, as to endanger suffocation. Thus we see when a person laboring with an anasarcaous dropsy, attempts to move suddenly, he will have such an oppression on his breast, as to be scarce able to breathe, especially if he goes up hill. For this reason a sensible prudent physician endeavors to set the stagnating fluids into motion not all at once, but gradually, with an intent that the extravasated serum being reabsorbed and mixed with the blood, may be expelled by sweat; or by an increased discharge of urine; for unless this end can be obtained, we can expect no cure.——

Friction is of great use in an anasarca, where the collected water stagnates in the adipose membrane, for it

acts more immediately on the extravasated serum, when the skin only intervenes, than if the abdomen was to be strongly rubbed in an ascites. Simple oil of olives has been known to have had salutary effects even in an ascites, which was cured by rubbing it night and morning for a month together—however I am rather inclined to believe the success was rather owing to the friction than to any particular inherent virtue in the oil.—Friction is by no means advisable if the belly be very much tumefied, or that the integuments be thin and over-stretched, or the breathing laborious—but when the swelling abates, the skin is less distended, and better able to bear stronger and rougher friction.

The ancient physicians very prudently began by very gentle friction, that suffocation and an oppression of the lungs might be prevented, from
the

the extravasated serum being too suddenly re-mixed with the blood.

Hoffman observed that an œdema of the feet repelled, produced a great oppression and stricture upon the breast. Nay he saw some patients who were seized with an ague, and that as soon as the cold fit began, and the swelling of the feet disappeared, they were suddenly attacked with a violent oppression and difficulty of breathing, and a sudden suffocation always happened in the third fit, as soon as the rigor began.

Exercise accelerates the motion of the venous blood towards the heart, and the circulation of the fluids may be encreased at will ; in all times therefore it has been strongly recommended as good in the cure of dropsies. *Hippocrates* advises, *labores, fotum, & temperantiam*, labor, fomentation, and temperance, *ταλαιπωρις*, that is hard and laborious fatiguing work ; and he

says the patient should persist in it, and even attempt climbing up steep hills, but lest the lungs should be oppressed by violent and sudden motion, he adds this caution: "but if he breathes with difficulty, and the season be sultry warm, the patient in the prime and vigor of life, and his strength will bear it, let blood be first of all taken from his arm."

If a dropsy happens in consequence of copious hæmorrhages or of drinking large draughts of water, and that there is no reason to suspect any of the viscera to be obstructed, or that there is a viscid cachochymia, we have no need of using attenuating medicines, but rather to use our best endeavors to discharge the water from the body, and that done, to restore and brace it with corroborants. It is much safer to draw off the water in an ascites by tapping, than by strong vomits and purges.

It

It is not easy to determine what number of tappings an ascitical patient may bear and receive relief from, before he sinks under the incurable disorder of the corrupted viscera.—A Swiss soldier bore the operation fifty-seven times in the space of twenty-one months: doctor *Mead* gives us the case of a lady who was tapped oftener. When I lived at Great *Yarmouth* in *Norfolk* I attended one Mrs. *Masters*, and was present at her being tapped thirty times, the whole quantity of water taken from her amounted to *one hundred and fifty gallons*.—It is very certain that a large quantity of water floats even in the warm summer air, though we imagine it driest; for fixed alkaline salts grow presently moist in this air, and encrease in weight as soon as they are cold; neither is it a small quantity of water which these salts attract to themselves from the air—it is

very probable to believe that dropfical bodies attract the water from the air, especially since no other cause can be assigned, why persons in an ascites, after they have been freed from all the water by tapping, should fill so soon again, although they drink little or nothing, and eat the driest food, and though the urine they discharge is more in quantity than the liquor they take.——

Vomits are of use sometimes, by which the excretion of urine is often encreased, when the extravasated serum begins to be reabsorbed in consequence of the frequent concussions occasioned by vomiting; and this fluid afterwards issues from the body by various outlets, if the cure goes on successfully.

A dropsy if recent, when the viscera are found and uninjured, the subject young and robust, and always healthy before,

before, is easily cured—even sometimes with two or three drastic purges.

A liquid form is preferable for purges, because the *primæ viæ* are frequently entirely dry, so that pills and other more solid substances can scarcely be dissolved, and therefore become less active in their operation.

A weakness of the solids, of the viscera, and of the vessels is a cause of a dropsy.—*Sydenham* observes that this disorder encreases more in winter than in summer, and more in rainy than in clear weather.--He advises the use of steel medicines, not only to corroborate the body after the water is discharged, but in the beginning of the disease, “when it has swelled the feet only, or but very little swelled the belly.”

A dry diet should be directed in this disease, of biscuit, or well baked and well leavened bread, roast flesh of

young animals, river fish broiled; the drink should be strong but sparing; *good old port* is astringent and of service, and that the flaccid intestines and the stomach may be moderately stimulated, some acrid seasonings may be mixed with the food, such as mustard, horse-radish, pepper, &c. having however regard to the season of the year, and the age and constitution of the patient recovered of the dropsy.

Water rendered extremely cold by ice or snow has frequently been recommended by physicians to be externally applied to the abdomen in a tympany, and to be drank also, and this with good success—certainly such a sudden cold contracts the solids, and at the same time checks the expansion of the flatulent matter, and so is useful in both respects. Cold water therefore in this case acts as a corroborant, but as soon as the abdomen begins to subside,

side, it should be supported by rollers, that the stomach and intestines may not so easily dilate again, but be able to resist the rarefied air which moves up and down their cavities.

We know that the peristaltick motion of the intestines is much encreased and forwarded by the stimulating power of purges, so that the fæces are much sooner expelled; wherefore physicians prescribe purges; and those of the most drastic kind, such as the *wild cucumber*, *common fleur de luce*, *Scottish scurvy-grass*, together with carminatives and aromatics. But as the whole intestinal tube is not always distended in this disease, but is often here and there only contracted, many have advised gentle purges, and those given in small doses joined with carminatives, in order to prevent a costiveness — for we have reason to suspect an encrease of the contraction in the already obstructed

structed bowels, from violent purges, and carminatives without some easy purge, rather do harm.

Hoffman discommends strong purges—and says they should be gentle and mixed with anodynes, and directs the body to be well rubbed with camphire dissolved in oil of almonds, at the same time.

We must endeavor to diminish as much as possible the rarefaction of the air contained in the cavities of the stomach and intestines. Air is swallowed down with our food, and is either separated from it in the time of digestion, imperceptible before because it was not elastic; or what is still much worse, it putrefies.—The great doctor *Hales* has demonstrated that air is naturally inherent in all bodies, and that it visibly constitutes a considerable part of their bulk; and that the self-same air is again separated from them whenever

ever their mutual connections are destroyed or lessened by fire, fermentation, putrefaction, effervescence, or any other causes. He has farther proved that the air separated from bodies, becomes elastic; and when combined again with them, loses its elasticity: he moreover observes that aqueous vapors diminish elasticity, whether they arise from pure water, or exhale from the bodies of animals; whence the elasticity of the imbibed air in respiration is lessened.—Now if we consider, that the food is dissolved in the time of digestion, that some tend to fermentation, others to putrefaction; a separation of air from the food must necessarily be supposed to ensue, which if not reabsorbed, and deprived by that means of its elasticity by the warm vapors exhaling from the extreme arteries into the cavities of the stomach and bowels, will distend these viscera,
and

and this by so much the more, by how much the viscera are less sound and firm, and thus they will be less able to resist the expansion of the air. In healthy constitutions, during the time of digestion much more air seems to be generated than reabsorbed; it is for this reason that men seem swelled and bloated after a hearty meal; but in weak habits we observe frequent flatulencies, especially if they have eat and drank of such things as contain a great deal of air, and are easily separated from them, or are quickly subject to putrefy and ferment. Hence it evidently follows that such patients should avoid crude summer fruits, turneps, radishes, &c.

Hales remarks that the vapor of brimstone most powerfully absorbs the air, or considerably diminishes its elasticity—and an accidental practical case demonstrates that *spiritus sulphuris per campanam,*

campanam, which is the condensed steam of burnt sulphur, is useful in this disorder.

Francis Oswald Grembsius had in vain tried to cure this distemper by hydragogue purges; he afterwards directed a fomentation of the boy's urine and lapis prunella, but without any hope of doing service.—The patient afterwards desired he might have something ordered to allay his great thirst.—The physician had some of the spirit. sulph. per camp. at hand, of which he directed him to take some drops in a glass of water.—This not only took off the thirst, but it brought forth prodigious flatusses, the abdomen subsided, and the patient was perfectly restored. It is well known how efficacious the steams of sulphur are to prevent fermentation, or to stop it when it is once begun.—Fermentation generates a great plenty of elastic air.

A true

A true emphysematous swelling of the intestines is not easily cured, for the remedies taken inwardly, though they may pass through the cavities of the intestines, can exert but very little of their force on the emphysema.

After the scrotum has been opened, either by incision or by caustic, it is universally agreed that a slight inflammation and suppuration must be encouraged, in order that the depurated sides of the bag may so cohere to each other and to the adjacent parts, that the whole cavity may be entirely destroyed. *Celsus* directs the membrane, which contains the humor, to be cut away.

Bertrandi and the very ingenious Mr. *Sharp* observe, that an inflammation excited in the *tunica vaginalis*, is very frequently attended with fevers of dangerous consequence, with deliria, spasms of the abdomen, and other
bad

bad and ugly symptoms.—Nay Mr. *Sharp*, though his patients in general got the better of the fever, confesses freely that this fever is more terrible and alarming, than that which usually follows upon the extirpation of the testicle—hence he condemns the cruel method of trying to tear off the *tunica vaginalis*, after the scrotum has been laid open—for the sole hope we have of a successful and radical cure in this case, is, to encourage a mild suppuration, and therefore gentle irritation is absolutely necessary.

Of the Gout.

THE gout and arthritis are two very distinct and different disorders; for though the gout when inveterate may seize on several of the joints at one and the same time, yet in its first stage, it always first attacks the feet.—Besides, *the arthritis generally begins with a fever, but the gout without any previous symptom, attacks the joints.*—Its first attacks are seldom lasting, in which it differs from arthritic pains which are of long duration—insomuch that if they happen in the autumn, they seldom leave the miserable sufferer before the spring—if therefore a person be seized with an unexpected pain in the foot or feet, without any manifest cause, which goes off again in a very few days of itself, or in consequence of some gentle remedies,

medies, we may reasonably suspect it to be the gout; and this the more especially if they have periodical returns in the autumn and spring—*Podagrici affectus vere & autumnno plerumque moventur*, says *Hippocrates*. We are here to take particular notice that *Hippocrates* does not say that the disease is produced, but seems to hint how the morbidick matter, which lay as it were hid and gradually accumulating, is moved, and disposed to charge its whole fury on the joints.

It very rarely attacks boys before the age of puberty—nor did it ever appear by any authenticated observations, that a true genuine gout ever afflicted the human race epidemically.—

Studious people are subject to the gout; because they use little or no exercise; by which means digestion is much obstructed, which is an immediate cause of this distemper.

As the powers of concoction are greatly weakened by too frequent copulation, too excessive venery is very pernicious and productive of the gout.

Λυσιμελὲς Βακχὺς καὶ λυσιμελὲς Ἀφροδίτης
Γεννᾶται θύγατηρ λυσιμελὲς ποδαγρᾶ.

From *Love* and *Wine* Health's chiefest
foes,

The joint-relaxing *Gout* arose.

The gout is less severe in summer than in winter. *Sydenham* has very accurately described the symptoms of this disorder—the fit, says he, for the most part comes on suddenly, now and then the patient, for some weeks before, complains of a crudity, and indigestion, and a certain uneasy weight in his stomach; his body is as it were puffed up, which daily encreases till the fit comes on——immediately preceding which, he perceives a kind of torpor,
and

and a wind passing downward through the fleshy parts of the thigh, attended with spasm—the day before, the appetite is voracious and unnatural.——

It has been frequently observed by gouty persons who have eaten too large a quantity of *asparagus*, that it has hastened a paroxysm.

Sydenham declares purgatives to be hardly ever of any service in the gout.

If we attentively consider with how much difficulty the fluids pass through such parts as are generally first attacked by this disease, we shall be able to form some tolerable and probable reasons why the gout first begins in the feet, which suffer greatly especially about the heels, as they are obliged to sustain the whole weight of the body—and being at a distance from the heart, that spring of circulatory motion, are frequently subject to cold and moisture; and the blood conveyed thither by the

arteries, must return by the veins, though they have the efforts of gravitation to overcome. — All these things well considered plainly prove how easy it is for matter to collect and lodge itself there; besides the ligaments and tendons which are numerous in these parts, are, as we know from anatomical injections, very impervious, and we are therefore not to be surpris'd that a free circulation of the humors should be prevented. — Moreover the feet are liable to receive injuries in walking, jumping, or from sudden falls, &c. these accidents, as *Aegineta* has well observed, very often bring on a fit of the gout.

The gout is naturally directed to the joints, but when the morbid matter is either too redundant, or can find no farther admission into its usual channels, it may then affect every or any part of the body——.

It

It very often gives no previous notice of a visit, but people seemingly go to bed in good health and are awakened by it in the middle of the night and *sonno excussè exclamant subito*, says *Lucian* whose description of the gout is most elegantly and justly depicted, and is well worth the reading—the pain according to *Sydenham* is like the forcing of the bones asunder, attended with a feeling as if water not quite cold was pouring on the membranes of the parts affected, then a rigor with a shivering succeeds, accompanied with some degree of heat.

A gentle moisture upon the surface of the skin, and particularly upon the affected part, usually relieves the patient—for then the swelling begins, and the pain considerably abates.

The severest of all gout is that in which we can observe neither swelling or discoloration of the part, be-

cause it is probable that the morbid matter is locked up and retained in the finer vessels,

The morbid matter is sooner or later expelled, in proportion to the quantity accumulated, and to the degree of strength in the patient to throw it off—in strong robust people, and those who are seldom attacked, the fit is over in fourteen days—but in aged people and those who have had frequent paroxysms it will continue for two months—in those who are much farther advanced in years or more broken down by the length and severity of the disease, it will not leave them till the summer is advanced.—

Nor is it certain when a confirmed gout will terminate—for the inclemency of the air, errors committed in diet or in the non-naturals, may all contribute to prolong the paroxysm.

Sydenham

Sydenham and *Mead* were of opinion, that the gouty matter collected in great abundance about the joint, when the fibres and more subtile parts were dissipated, hardened into *chalky* concretions.

Hoffman took this chalky matter to be a tartareous concretion, and endeavors to support his opinion, for these reasons principally; persons laboring under the gout were often troubled with the stone at the same time; and that this chalky matter appeared evidently to be of the same nature with tartareous salt, compounded of an acid and a good deal of earth, and that drinking too much of wines, in which this tartar abounds, contributed most generally to produce this distemper.

Haller with very great industry applied himself to examine in what manner the bones were first formed in young animals at the time of incubation.

bation. He observes, that the whole body, and of consequence the bones themselves were in a soft jelly-like state while the animal was forming—this jelly first becomes cartilaginous, and then osseous.—The conversion from a jelly into a cartilage is quick and easy, for it requires but a small degree of solidity, but it is less accountable and more difficult for the cartilage to become ossified. A cartilage, when not very thick, is pellucid, the first signs of its assuming a bony nature are opacity and a yellowish color, and it is of a very fibrous texture: this change is perceivable on the eighth day of incubation, on the tenth, the first rudiments of the blood are to be seen, distinguishable by a yellowish cast, on the eleventh we observe the redness, and on the same day, that part of the cartilage which began to be opaque and yellow on the eighth, looks

looks now of a reddish color, for the arteries now being dilated, are able to transmit some red particles of blood, and a bony concretion is easily discernible in some parts of the cartilage, such as may be observed in callus's of fractured bones, before they acquire their former solidity and hardness. The arteries now gradually enlarging, press upon the adjacent parts, and harden them, as they become more and more dilated, and are more fitted to give a passage to the grosser parts, those especially of an earthy nature, by the interposition of which a greater degree of solidity and brittleness is given to the cartilage, and of consequence lessens its flexibility, thus from being a flexile elastick substance, it becomes entirely hard and bony. If this earth be mixed with the acid of vinegar, it becomes a neutral salt full of shining crystals, which can soften the
bones

bones and so resolve them again into their former cartilaginous state. Gouty concretions consist entirely of this earthy part—this it is which deprives the ligaments of their flexibility, and deprives all the parts of their use and motion, and deforms the joints in so extraordinary a manner, as we see in gouty people—the gout is very properly therefore stiled περιχονδυλοπρωροφια, delighting to stiffen the joints.—The emperor *Galba* it is said was so miserably mauled with the gout, that he could not make use of hands or feet—and cried out, “ *Cum esse oportet, manus non habeo; oportet progredi, non sunt mihi pedes, oportet dolere, tum & pedes mihi sunt & manus.*” When I would eat I have no hands; if I am inclined to walk, my feet fail me; but when I am to be tormented, then both hands and feet are ready.—

There

There is great reason to believe that the proximate cause of the gout consists in a vitiated disposition of the most minute, and of consequence, of the nervous vessels in the body, and even in a depraved state of that exceeding fine subtille fluid which circulates or moistens them.

The most painful gout, of all others, is most certainly where no swelling or inflammation appears upon the part affected, and even where there is little or a very small degree of fever attending.

Costa has observed, that the urine before a fit of the gout for several days together is very pale and muddy, something resembling thick lemonade, and the longer these symptoms continue before an attack of the distemper, so much severer he apprehended would be the approaching paroxysm; all which plainly proves the existence of
an

an acrimony in the humors not sufficiently discharged by the urinary passages.——

Sydenham declares it to be his opinion that the gout owes its origin to an *apepsia* or injured concoction of the particular parts, as well as of the whole mass of humors in the body—— the gout in general, we see, attacks the rich, who live splendid and luxuriously.—— We have known some of these to have been cured, when by any unfortunate accidents they have been reduced, and therefore obliged to have recourse to work for their maintenance; labor and bodily exercise will either subdue, or expel, any noxious humors, happening in consequence of an imperfect assimilation of the food, from the body.—— A ploughman with eager appetite devours the coarsest bread and bacon, which would very little agree with the stomach of one who
leads

leads a studious and sedentary life. —

Sydenham therefore recommends a diet consisting of soft, well-boiled simple food, and farther advises gouty people to eat at dinner only, and never to touch suppers—he moreover strongly enforces exercise, especially *walking though it be attended with some degree of pain.* Now if we well consider these things so much insisted upon, we shall find them to be such as are chiefly calculated to restore and promote the languid action of the chylopoietic viscera, in order to forward a perfect assimilation; for if any thing faulty remain in the first concoction, it is hardly to be amended in the others; nay even though the liquids, which flow through the larger vessels, may be unimpaired, yet there may be something not altogether agreeable to nature, remaining in the very subtil and fine fluids that are separated from the blood,
and

and more in the exceeding tender vessels, which being accumulated and rendered still worse by stagnation, may occasion many, and various surprising diseases.

Reaumur has evidently demonstrated that the vital rudiments of a living animal may remain unchanged for many years, and forbear to give the least sign of encrease, yet when occasion serves, is afterwards capable in all respects of producing another animal according to its own likeness. In the vegetable kingdom, the rudiments of a future plant, contained in a ripe seed, may be kept in that state almost for any number of years, even to four-score.—Nay *Baillou* gave some seeds and beans to a gardener, which had been kept above two hundred years, which being planted grew to maturity and proved the fine kidney bean. Many things of this kind even occur in the

the human body, which plainly prove many certain latent principles remain a long time in it, without receiving any additional encrease, till after some years they at once make their appearance. The hairs are from the very beginning planted in the skin that covers the *pubis*, and yet they only appear at the time of puberty, and then indeed they grow very fast, &c.—It will not therefore appear so absurd, that the unhappy seeds of the gout and other distempers should be so intimately conjoined to the first rudiments of the embryo, as not to shew themselves by any tokens for many years, and at length, at some period of life, awaken into action, and produce a disease alike in every respect to that which originally afflicted the parent.—

*Cognoscat unusquisque, me solam deum
Non delinire pharmacis, non obsequi.*

My

My power mankind shall own; and pray
in vain,

Nor find one kindly drug to ease their
pain.

Luc. Tragopod.

So that we are not to expect a radical cure for this disease—whatever the ignorant and empirical tribe may pretend. Temperance, care, and sobriety may keep it under.—

Bleeding, unless under the most violent symptoms, of a delirium, fever, difficulty of breathing, &c. is by no means adviseable, lest it remove the morbidick matter, and drive it towards the viscera.—If there are signs of filthy unwholesome matter collected in the primæ viæ, to purge it off by gentle evacuation may not be hurtful; but it does not by any means appear eligible to disturb the body with sharp irritating medicines, in expectation of carrying

carrying off the gouty matter by stools, more especially when deposited upon the joints, or near being deposited; for in that case we have reason to fear, that the matter may be driven inwardly, whence the worst consequences may happen — during the paroxysm, the work of nature seems to be more requisite than the attempts of art, and therefore diluent drink, or an emollient gentle clyster, seems to be well calculated to assist nature, but to provoke these evacuations during the fit by any sharp stimulants, is most undoubtedly prejudicial. —

Diaphoretics are less hazardous than purgatives or emetics. —

Sydenham observes, that to evacuate the peccant matter by *sweat*, is less hazardous than when it is attempted either by *purges* or *vomits*. — But he much condemns such sweats as are excited by hot stimulating medicines, es-

pecially during the time of the fit, for fear they might drive the morbid matter too forcibly into the articulations, and so occasion intolerable and most excruciating pains.——

Neither *Sydenham* nor *Mead* were advocates for purgatives in the cure of the gout, they rather imagined they aggravated the disease by repelling it upon the joints—where-ever there appeared the least tendency of the gout falling inwardly upon any vital part, *Mead* recommends the warmer purgatives but not the stronger ones in order to remove the disease from those parts.

It is a very necessary precaution when physicians attend persons who are subject to the gout that are suddenly attacked with any other disorder to have a particular regard to this disease; and to irritate the parts which have been formerly affected, by friction, fomentation,

mentation, blisters, and every other method to fix the wandering gouty matter on the extremities—and this is more particularly necessary when the gouty person has not had a fit for a considerable time, and has committed some error in his way of living. *Totis viribus* (says Mead) *contendendum est, ut ignea colluvies ista in partem quam prius occupaverat revertatur.*

The morbid matter of the gout is no doubt very easily to be moved; but it would be attended with the greatest danger, and very little advantage to the patient, for it will be repelled upon the viscera, whence it can seldom be recalled again to the joints, and even if it can, it is attended with much severer pains than before—the consequences of repelling this disorder, is too obvious to the wary and experienced practitioner. “*Ego vero affirmo*

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(says

(says Trallian) *ne adstringentibus quidem, & repellentibus, in affectis partibus utendum esse, nisi totum prius corpus a recrementis liberaveris. Nam quod articulis insluit, ne, ad partes principales recurrens, suffocationis causa fiat ægro, periculumque mortis adferat, metuendum est, siue igitur discutientibus, siue repellentibus uti velis, totum corpus vacuare properato.*" I do positively affirm, that neither astringents, no, nor repellents should be applied to the parts affected, until the whole body be discharged of recrements; for there is room to fear, that what should be deposited on the joints, may be driven back towards some noble and vital parts, and so endanger suffocation and sudden death— if you are determined to make use of such sort of methods, be careful first of all to clear the body of these recrements — by recrements he must certainly

tainly mean the gouty matter—the great *Sydenham* frequently admonishes us to be extremely cautious how we use such medicines in the cure of this distemper.—

Sydenham though he in general advises a moderation in the diet of gouty people, yet does he condemn too great an abstinence—and even allows flesh meats, for though, says he, a thin diet be best, yet as some people cannot bear such a total abstinence but become languid, nay are subject to faint, I would under such circumstances allow flesh, taking care however, that they do not transgress either in quantity or quality, for although their strength is to be supported, yet must not the body be overloaded with too great a quantity of food.—

The great difficulty attending the cure of the gout (according to *Sy-*

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denham) arose from the natural opposition of the medicines, for such as were of service in assisting digestion, did harm by their heating qualities, in rendering the morbid matter more active and outrageous; and on the other hand, those which cooled and blunted the acrimony of the humors, were manifestly injurious, because they weakened the viscera.

Doctor Mead warns old people in particular, and those who have had many fits of the gout, against attempting a strict diet upon milk and greens; for he had observed, *his, si non omnino invadit morbus, pro articulis præcordia infestentur, crurumque insuper robore destituti, vitam sæpe in reliquum miseram transigant*; in such, if the gout kept entirely off, in place of the joints the parts about the præcordia were sure to be infected, besides they lost all the use
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of their limbs, and remained miserable for the rest of their lives; if at all, he recommends such a regimen to young persons, or to such as have had but very few fits, or where the disease is hereditary; and even then does he recommend a strict diet of milk only—but advises once a day flesh-meat, and fresh-water fish.—

Sydenham though very free in the use of opiates in many diseases, was very sparing of them in the gout, and gives this prudent admonition, *Si igitur dolor admodum sæviat, æger rectius sibi consulet, se in lecto continendo, donec is aliquantisper remiserit, quam si anodynis utatur: attamen haud abs re fuerit, laudani paucillum vesperi sumere, si dolor patientiam multum vincat: aliter melius omittetur;* should the pain be excessively severe, the patient till it is somewhat abated, had better keep in his bed, than take

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any thing by way of an anodyne—but should his pain get the better of his patience, he may then take a small dose of laudanum in the evening—he would however do better, could he let it alone.—

Sydenham when the pains suddenly left the joints, and that this was succeeded by a great sickness and oppression, attended with vomiting and gripes, immediately swallowed down some *pints of small beer* or other weak liquor, and as soon as all this came away by vomit, took *eighteen drops of laudanum*, in a little Canary wine, went to bed and composed himself to rest: he assures us that by this method, he has frequently recovered himself from the most imminent danger.—

Persons very far advanced in years are not so severely or regularly attacked with the gout, as those who are in the vigor of life.

Bitter

Bitter medicines which have a grateful aromatic stimulus are of great use, for by them the viscera are irritated into a brisker motion, and if the bile has lost any proper degree of acrimony, the bitterness of the remedy will correct that inconvenience; whence all bitters, that are not purgative, have in all cases been esteemed stomachic;—they restore strength and vigor to the viscera. Sydenham held such medicines in the highest estimation, *quæ miti calore atque amaritudine ventriculæ corroborant, & sanguinis massam vegetiorem reddunt ac magis vitalem.* To these bitter and strengthening medicines he used to recommend antiscorbutics, such as horse-radish, scurvy-grass, water-cresses, &c.—he farther recommended the cort. Peruvianus a few grains to be taken night and morning. These sort of remedies however

however are best suited to those who are advanced in years, but these or the *Portland* powders should never be given to those who are of a bilious habit. Where the patient is troubled with acid vomitings *Hoffman* says great relief may be expected from absorbent earths and lixivial salts, he therefore recommends the *Caroline Baths* to gouty people, as they contain a considerable quantity of alkaline salts.

Bodily exercise such as riding on horseback, in a carriage, nay walking even though the patient is in a little pain, is of infinite use—and so are frictions morning and evening about the feet—by which means the parts are strengthened and any morbid matter collected, dissipated and melted down.

Ætius much recommends them, *non quidem tempore inflammationis, et doloribus instantibus, sed cum hæc remittunt.*

External

External applications are best let alone, they seldom prove of any use—it has even been observed that the joints stiffen sooner for the most part, when they have been too much pestered with fomentations, ointments, plaisters, &c.

How happily the waters of BATH, both internally as well as externally used, have contributed to the relief of the *gout*, is strongly confirmed by the testimony of many ages.

Diseases incident to Virgins.

IT has been constantly observed that those who have been irregular in the course of their catamenia, have never been so fruitful, and have been always liable to frequent miscarriages.

Columbus was of opinion that the menstrual blood came not from the vessels of the womb itself, but from those *quæ in uteri cervicem ad ejus latera inferuntur*. — But we have demonstrative proofs that the menstrual flux proceeds from the uterus itself; this is confirmed by *Mauriceau*, *Littre*, and *Morgagni*.

The membrane which covers the bottom of the uterus, as *Winslow* remarks, is perforated by a great many small foramina, to be seen even with
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the naked eye, from which upon a slight pressure of the uterus, the blood is easily forced out; this same membrane is of a villous texture, resembling velvet; this villous surface together with the foramina are more or less tinged with blood in women who have died during the time of the menstrual discharge; water and injections of colored wax when thrown into the arteries, pass out of their extremities into the cavity of the uterus — All these things considered, we may naturally conclude the internal cavity, and particularly the bottom of the uterus to be the true seat from which the menstrual discharges originally issue forth. However, as the whole pudendum and vagina in women constantly discharge a fine, soft, watery, serous liquor from the extremities of these very little strait arteries which open into them; and as they are provided with

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with blood-vessels similar to that of the uterus itself, it doth not seem at all improbable, but that even blood may issue out of the dilated extremities of these vessels—and in women with child, who during their pregnancy have these discharges in smaller quantities, it is perhaps from these vessels of the vagina, that the blood comes away without any ill convenience in consequence of it; for if it proceeded from the cavity of the uterus, a miscarriage would most probably follow.——

The menstrual flux seems ordained by nature to happen at a certain time of life, not only to relieve the body of a superfluous quantity of blood, but so to dispose the uterus as to render it fit for conception.——But whether women in countries where they seldom or ever menstruate, do notwithstanding continue prolific, is a question which
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will admit of a doubt.—Writers of travels frequently relate things upon credit, and often have neither an opportunity or inclination to examine narrowly into matters of this kind. *Linnaeus* observes that the women in Lapland menstruate in very small quantities, and says at the same time, that those who never had this discharge, were always barren.

Physicians from the very structure of the female body imagined there was a sufficient reason to account why this superfluous blood should rather be discharged by the uterus, than by any other part of the body—if the bony construction of the *pelvis* be considered, we shall find it remarkably different from what it is in man, and much more capacious.—The vertebræ of the loins recede farther back from each other, the distance between the *os sacrum* and *os ileum* is greater, so is that

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that between the *ilia*: the *os coccygis* is straiter and more flexible than it is in a man, which is bent a little more forward; the bones of the *pubis* join each other at obtuser angles—besides the protuberances of the bones of the *ischium* recede much more from each other—whence the necks of the *femora* are more transversely placed, and form less acute angles with the *acetabula*; all these reasons considered we find the pelvis must necessarily be larger in women than in men, in order that during the time of pregnancy the turgid and distended abdomen may be more firmly supported.

The *uterus*, which is entirely vascular, is situated in this large *pelvis*, between the bladder and the *rectum*, almost loose, and under a very little pressure; for in the time of pregnancy the whole bottom of the uterus ascends towards the abdomen, and in a

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prolapsus uteri often descends so low, as to be protruded without the lips of the pudendum; besides, the *uterus* may slide forwards, backwards, and sideway in difficult labors. Now, though the uterus feels apparently firm and solid to the touch in young girls, and in maidens fully grown, yet the effects of pregnancy shew that the vessels may easily yield, and dilate to a surprising degree, since the *uterus*, towards the close of pregnancy, appears like a sponge filled with blood, while the vessels, scarcely discernible before conception, are so enlarged, as sometimes to admit the tip of the little finger. The *uterus* moreover receives a great number of arteries from the spermatics, hypogastrics, hemorrhoidal, and external iliacs. It is farther supplied with a like distribution of veins derived from the same origin, all destitute of valves, and communicating

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with each other; which is the case likewise with the uterine arteries, whence a free circulation of a larger quantity of blood is carried on without the least impediment. The interior cavity of the *uterus* is at the same time pierced by these very minute apertures, which discharge a thin, aqueo-mucose moisture, in order to lubricate and soften the internal substance of the *uterus*, and to prevent the sides of the cavity from adhering to each other.

All these things which regard the situation, vascular fabric, and ready expansion of the *uterus*, being clearly understood, it is next to be considered that women sooner arrive to their utmost growth than men, and yet their viscera extract from the aliments the same quantity of nutritive humors as before, which however do not serve the purposes of accretion as before; and since it is observed that women perspire less
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than men, it must follow that a quantity of wholesome humors will be accumulated in the vessels, and a plethora ensue, useful indeed, where a woman becoming pregnant, has not only her own body, but that of the child's to flourish and support, but injurious, when that is not the case, when allowed to be daily increasing, without any salutary provision made or outlet given to carry it off. Such a superfluity is therefore necessary, in order that a woman may always be in a condition to conceive and nourish the foetus; and it is as necessary that there should be such outlets to carry off the redundancy when a woman is not under such a situation. Seeing then that the uterus is wholly vascular, loosely situated, and easily dilatable, and that it has a cavity adapted to receive the superfluous humors, till they are afterwards expelled by the *os uteri*; hence the ves-

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sels of the uterus being gradually enlarged by the increased quantity of sound humors, become so much dilated, as that their extreme orifices, which at first discharged a dewy moisture only, gradually encreasing in their diameters, send forth even the red part of the blood into the cavity of the uterus, and so the menstrual flux follows of course; the erect posture of the body also greatly assists its secretion and excretion——.

But when the *plethora* is once lessened by this bloody discharge from the *uterus*, the vessels being no longer distended, contract themselves by their own power into lesser diameters; and then they no longer admit the red blood to pass, but the very thin humors only; and thus the minute extremities of the vessels which open into the cavity of the *uterus*, return to their former dimensions, till the *plethora* returning in
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consequence of the same causes, dilates them again, at the same interval of time.

Those who would deduce the cause of the menstrual flux from a plethora arising, for instance in a girl's body when arrived at its full growth, do not seem to have considered how frequently it happens that girls grow remarkably taller and bigger after having had several regular periods of the menstrual discharge. The encrease or growth of the human body has by many been observed, not always to proceed in so regular and gradual a manner, as has been commonly imagined. That the human body the nearer it is to its origin, has a very quick tendency to grow, the foetus sufficiently demonstrates, which from a very small speck grows in nine months time to so remarkable a size. We frequently ob-

serve in the progress of life a very great difference with regard to the degrees and quickness of growing. Towards puberty we frequently remark a sudden alteration, in others it happens sometimes later, so that in a very few months, the body grows more in size and stature, than it had done for two years together before. It is well known, that young people, when seized with feverish disorders especially of the acute sort, if they escape, grow taller as they recover; because the humors from the force of the fever are impelled through the vessels, which by that means become stretched out and dilated, whilst the bones too, not having as yet acquired their full hardness, easily yield to the same impressions; but the disorder ceasing, the cause of this sudden growth will cease also, and yet I have seen some persons grow surprizingly

prizingly more after their recovery, than during the continuance of the disease.

Doctor *Simpson*, to prove that the menstrual flux does not arise from a plethora, observes, that doctor *Friend* supposes a *pletthora* to be gradually and daily accumulated, between each menstrual period, particularly confiding on what *Sanctorius* has asserted, that the bodies of men encreased in weight one or two pounds every month. Now doctor *Keil* in his tables has demonstrated just the contrary.—Besides, if the menstrual discharge depended upon the gradual accumulation of a *pletthora*, the periods would necessarily be retarded, whenever the quantity of humor was lessened by any evacuation, or whenever this accumulation was prevented by inanition or abstinence.—Now doctor *Simpson* boldly appeals to the testimony of all physi-

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cians, the least conversant with practice, whether they ever saw a stoppage of the monthly periods by bleeding during the intermediate interval?—It has even frequently accelerated them—*etiam vulgo compertum esse*, says Hoffman, *secta ante tempus menstruorum vena liberiores eorum fluxum fieri.*

In consequence of these difficulties, doctor Simpson denies a *plethora* to be the cause of the menstrual discharge; but proposes another; for he was of opinion that the body did not cease to grow because the parts becoming more strong, too powerfully resisted any farther extension or elongation, but because the extending and elongating power was diminished for as long as there is a greater resistance in the flexible vessels, the fluids impelled through these vessels by the force of the heart, will distend and lengthen them the more, and on the other hand, the more
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freely they pass through these vessels, the less will be their extension and elongation. He therefore imagines, the body to have arrived at its *ακμή* or full growth, when all the vessels are most free, pervious, and open, so as to give an easy passage to the fluids impelled; whence he concludes, the growth does not cease, because the parts cannot yield, but because the force and efficacy of the distending powers are lessened, or greatly impaired.

He supports his opinion by observing that if in an adult any obstacle arises to the free circulation of the humors from an obstruction in any of the viscera, these viscera will immediately be immensely enlarged, as many medical observations have demonstrated it in the liver, spleen, kidneys, &c. Thus in steatomatous swellings the more the matter secreted from the blood is accumulated

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cumulated in the follicle, the more it presses upon the neighbouring vessels; these vessels in their turn encrease in bulk the more they are distended by the impulse of the blood thus impeded in its free circulation.

From these considerations, therefore, he concludes, that the menstrual flux itself is the reason, why the *uterus* comes to its own full growth, and then ceases to grow; for when once the blood is discharged into the cavity of the *uterus* from the mouths of the vessels, or into the sinuses first filled in the substance of the womb, the circulation of the humors by the uterine vessels will be very free, the distending and elongating power will consequently cease.—But when the *chorion* and *placenta* closely adhering to the internal surface of the womb, in its time of impregnation obstruct the free passage of the blood, the womb again encreases
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in its bulk, and becomes of a remarkable size.

Again; he maintains the gradual encrease of the uterus to be the cause of the menstrual irruption; for there always is a secretion of a thin liquid within the cavity of the womb to keep it moistened, and prevent the concretion of its sides. Now these minute exhaling vessels are very small, and at length dilate more and more as the womb becomes enlarged; and so at last transmit the red globules of blood—then it is that the *menfes* begin to flow, and which may very well happen without a plethora of the whole body. But as the blood has now a free passage through these dilated orifices, the resistance to the blood propelled through the uterine vessels is taken off, the dilating cause will cease of course, they contract themselves by their own proper effort, till at length, allowing no more

more red blood to pass, they only secrete the very fine fluids as formerly, and thus the menstrual flux ceases spontaneously. By the same way of reasoning he explains why the *menstrua* in strong robust women, give over sooner; because the texture of their vessels being firmer, while the dilating power is weaker, the vessels will be much sooner and more powerfully contracted—whilst women of a soft and delicate texture, have frequent and copious discharges.—

It must be acknowledged that medicine owes much to mathematical and physical reasoning in general, by which the common properties of bodies are explained, and provided the *data* are true, the theory built upon them will prove so beyond contradiction. The laws of hydraulics may be applied to the human body; it consists of canals, and liquids moving through them, as
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also sinuses, receptacles, &c.——And yet all the phænomena are not to be explained by hydraulics. Our canals have a living principle in them; they are indeed dilated by the liquids impelled by the force of the heart, and by their own elasticity return again to their former diameters, our vessels are nevertheless acted upon by other causes besides these, that can neither be understood nor explained by hydraulics. Many ingenious men have endeavoured to determine the proportion the trunks of the vessels bear to the branches, and the branches to each other, and the diversity of angles by which the different branches go off from the particular trunks, &c. But these are not sufficient to give us a clear idea of every particular to be observed in our bodies; by a change of thought alone our canals become in a moment changed, so that they shall either quickly dilate, or

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as suddenly become contracted. A person in perfect health suddenly struck with terror, turns pale immediately—An immodest expression hastily thrown out before a bashful girl, will throw a vermilion all over her face, neck and shoulders.—These and many other similar reasons, incline me to think that all the things which happen in the human body cannot by any means be explained by the general principles of bodies, though we be ever so well acquainted with the particular structure of the parts—it is by observation only that we know they are so, though how or in what manner they became so, is a matter not so easily understood, if indeed understood at all.

The body, about the time it comes to be fit for generation, undergoes several alterations, insomuch that physicians entirely trust to the age of puberty for the hopes of curing several
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of the most obstinate distempers, which they could not effect by the power of the most approved medicines, this we particularly observe in epilepsies, &c. Comparative anatomy will teach us how surprizingly the genital organs alter in animals when the season of generating approaches, and they swell with venereal rage.

Menstruis copiosioribus profluentibus morbi oboriuntur; at non prodeuntibus accidunt ab utero morbi, says *Hippocrates*: *Galen*, in his comment upon this aphorism, very justly observes that *Hippocrates* presaged all the disorders of the body from the copious discharges of the *mensēs*, because from too great a loss of blood, the body necessarily became cachectic; but when the *menstrua* did not come away, then the *uterus* became liable to disorders, either because the vessels were too rigid, or that the blood was too largely accumulated

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in the substance of the *uterus*, or from both causes concurring together; and hence says, we are to expect inflammatory, scirrhus, erysipelatous and carcinomatous affections—these disorders we frequently see happen at that time of life when the menstrual flux begins to leave the sex, especially those who formerly have had it in a free and copious manner, and that it has stopped too suddenly.

Difference of climate, habit of body, and various ways of living occasion a great diversity in the menstrual discharges—the women in *Lapland* menstruate but little; in hot countries the *menfes* come away in great abundance; in a lax habit of the body, these discharges are always more copious, in women of a firm and robust constitution the quantity is small—those who live at their ease, and fare sumptuous and luxuriously, menstruate in large quantities;

quantities ; while the country peasant, hardened by daily labor and fatigue, discharges scarce any thing, and yet enjoys good health.

Hippocrates in speaking of the quantity discharged during the time of menstruation says, “ *at omni mulieri, si sana sit, prodeuntes menses moderati sunt, qui ad duarum Atticarum heminarum mensuram, aut paulo plus vel minus, idque ad biduum vel triduum, manant. Longius autem tempus, aut brevius, morbosum aut sterile est.*” Most authors take the attic *κοτυλæ* to be equal to the Roman *hemina* ; but the *cotylæ* were also called pounds which contained twelve ounces of measure, which were equal to ten ounces in weight, that is as much as the weight of the Roman *hemina*. Various have been the disputes and conjectures of the learned concerning these measures, this last however seems to be the most plausible ; and though there

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may be some difference between the Attic *cotyla* and the Roman *hemina*, yet it does not appear to be very material towards the settling the quantity of the menstrual flux; physicians seem to have settled the quantity to twenty or twenty-four ounces, whether they reckoned by weight or measure—*Freind* fixes it at twenty, and then computes how much blood ought to be accumulated daily in order to constitute this menstrual plethora.

Astruc after observing the vast difference in this respect to be met with in different women, nay even in the very self-same woman at different times, is of opinion that at a medium, the limits of this variation might be settled from eight ounces to sixteen; though there are also instances of women in very good health, who yet menstruate every month, some a greater, and some a lesser quantity than even this. *Haller* reckoned six or eight ounces the ordinary

fiary quantity of the menstrual discharge, doctor *Brudnell Exton* says it rarely exceeds four ounces. *Du Hahn* took the following method to determine the quantity of the menstrual discharge; he poured some fresh drawn blood, while warm, the quantity of which he perfectly and precisely knew, upon a piece of linen, then marked the linen exactly how much it was stained. By frequently repeating this, he arrived to that degree of exactness, that he would for any wager determine the quantity of blood received upon any piece of linen, and thus could very nicely determine how much blood was discharged from the *uterus* during the time of menstruation; he found some women lost three ounces, others four or five, not so many who voided half a pound, very few ten ounces, unless where the uterus was any ways diseased. While the internal surface of

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the *uterus* remains in such a disposition, as readily to allow the human *ovum*, containing the tender embryo, to adhere and grow to it, a woman will ever continue prolific. To this aptitude the menstrual flux, though but in a small quantity, appears greatly to contribute, nay, though that very rarely happens, some women have proved pregnant, who never had the menstrual discharge, instances of which are to be met with in the writings of *Schenk* and other physicians; their vessels, probably, were so disposed as to be pervious indeed and commodious for the reception of the human *ovum*, but yet not so far dilated as to allow red blood to pass, for it is often observed of women who are deprived of their *menfes*, that in place of blood, a small quantity of a thinner fluid comes away at fixed stated times. It is the same case perhaps with the *uterus* in women who
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give suck, many of whom I have known to conceive, though they have had no returns of the *menfes* since the time of their delivery. Daily experience informs us what a remarkable consent there is between the breasts and the *uterus*. Thus in a virgin come to maturity, the breasts begin to swell, whenever the *uterus* is ready for menstruation; in childbed, as the *lochia* on the third day are lessened, nay frequently entirely cease, the breasts quickly fill, and if the woman suckles her child, the *lochia* return again, whilst the milk passes freely from the nipples; but if she does not give suck, the breasts subside, and what passes by the *uterus* is at first whitish, and then afterwards of a bloody cast, so that, *cæteris paribus*, the *lochia* flow a longer time and in greater abundance, with those who do not give suck. I have sometimes observed that in nurses, in

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the room of their *menstrua* they have discharged a small quantity of a thin whitish liquor from the *uterus*, and upon a farther dilatation of the vessels, some blood has followed in several, though not in others. At this time also, it is probable, had they been put to their husbands, they would have in all respects been disposed for conception, for according to *Galen*, conception chiefly takes place when the *menstrua* are nearly stopped—for then those vessels upon the internal surface of the *uterus* are just so much contracted, as to exclude the red globules, yet open enough to let a thinner fluid pass; the same, says he, is the case in the beginning of *menstruation*. Whence in nurses who conceive without any return of their *menfes*, it would seem that the *uterus*, with respect to its vessels, is in the same condition as when the *menfes* are about to flow, or beginning to give over;

over; that is, the vessels are not altogether contracted, but only so far, as in the place of blood, to let the thinner humors only pass off. Might not this be the case, where women have conceived without ever having had their *menfes*?

The signs, when the *menfes* are about to flow are very well described by *Moschio*. The breasts swell, a weight and itching are felt about the *pubis*; they grow lazy, feel a heaviness in the kidneys, sometimes a pain, they yawn and stretch themselves, their cheeks flush and then it goes off again, they are sometimes maukish and seem to loath every thing—these are the most common and usual symptoms which precede or accompany the menstrual flux; many complain of a rigidity or stiffness in the muscles and tendons of the neck, others again are troubled with an head-ach.

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The continuance of this menstrual flux varies, in some women it holds a longer, in others a shorter time, in most however it is over in three or four days; it is always counted best to drop gradually, and to flow uninterrupted till it entirely ceases. Sometimes, it happens that the *menfes* flow two or three days, then stop, and presently after return again.—Women under this case find this ill convenience that all the other symptoms return, which usually precede the eruption of the menstrua, particularly a head-ach and a troublesome stiffness in the neck, till the blood again flows from the *uterus* as usual. We may very nearly determine, by the authority of *Hippocrates*, the quality of this blood which comes away by the menstrual flux — *prodit autem sanguis, qualis e victima, citoque concrefcit, fi mulier sana est.* Now it is universally known, that the ancients chose

chose the most healthy animals for their sacrifices—and the blood of healthy animals, especially if it springs from an artery, very easily and very speedily coagulates. Prudent physicians who mean to act properly towards the cure of the menstrual obstruction, are ever careful to distinguish properly, whether the disorder arises from a real and true obstruction of the *menfes*, or whether the want of that discharge is owing to any other present or preceding cause—in the former case, a *plethora* will follow, and their color will be intensely red—but if it arises from any other disorder, they will be altogether pale and of a bad consistence.—Hence a diversity in the method of cure will be highly necessary—for a *plethora* will require bleeding, when an obstruction arising from a bad habit of body, will demand quite a different treatment.

ment. A paleness may attend a suppression of the *menfes* even where a *plethora* really exists; for it is well known that good sound blood, when drawn from a vein, and left standing in a clean vessel, will separate into two parts, viz. into a thin liquid *serum* and a *coagulum*. If all this *serum* be poured off, in a very few hours a fresh quantity of *serum* will be seen, the red part gradually dissolving, the greatest part of which may be thus converted into a yellow or greenish yellow-colored *serum*.

Now the vessels too greatly distended by the *plethora* lose part of their force, by which they were wont to act upon their contained fluids, the humors therefore will not be so well condensed and worked up, and the red part of the blood will be melted down into a *serum*, the redness of the body will consequently gradually decrease, and so occasion a paleness.

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The pains of the loins and groins must necessarily happen, because the sinuses of the *uterus* being very numerous dispersed through its whole substance, become turgid with the accumulated blood, the vessels therefore which run in between them, will be necessarily compressed, the neighbouring vessels will be more filled, and consequently more distended. "*Quum menses latuerint* says *Hippocrates*, *dolor detinet inum ventrem, illique pondus incumbere videtur, lumbi & ilia dolent.*"

Tabarranus a very ingenious anatomist observes that there is a very free communication between the veins and cavity of the *uterus*; for upon blowing into the veins, he observed the cavity of the *uterus* and *vagina* to be filled with air, and again blowing air into the orifice of the *vagina*, he saw the veins belonging to the *uterus*, *vagina*, and *ovaria* all swell up. When
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therefore the *uterus* is in a sound condition, there must be a very quick and easy resorption by the uterine veins.

It would seem therefore that *Hippocrates* from this easy resorption had taken his proofs of *fœcundity*, when he observes, “ *Mulier si utero non concipiat, scire autem velis an conceptura sit, vestibis obvolutam subter suffito: atque si odor quidem ad aures & os usque per corpus tibi pervadere videatur, ipsam nosce per se infœcundam non esse.*” Hence it is very evident, that should the purulent corrupted humors, by stagnation, settle here, they may, by being resorbed, bring on the worst of *cacochymia*’s, and so disorder every function: though something must also happen, from a translation of matter that has been so resorbed, to all the various parts of the body.

“ *Menses non supprimi, (says Hippocrates) utile: ex talibus comitiales morbi fiunt,*

fiunt, ut arbitror, quibusdam, ventris subductiones diuturnæ, quibusdam autem hæmorrhoides." And in another place "*Morborum omnium uteri causæ sunt;* and Celsus, "*quibus fœminis menstrua non proveniunt, necesse est, capitis acerbissimi dolores sint, vel quælibet alia pars morbo infestetur*"; thus marking out the most usual symptom which attends an obstruction of the *menfes*, namely, a most inveterate and violent head-ach, and acknowledging that great influence which the *uterus* has over all the parts of the body.

From a variety of faithful observations, it is certain, that the blood, on account of suppressed *menstrua*, being retained and so of course accumulated within the body, will frequently find itself most surprising passages. This indeed is chiefly accounted for from the vessels being greatly distended by the *plethora*, and sometimes breaking,

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ing, or even without breaking, being dilated so much as to allow the blood to pass by means of anastomosis; and yet this doth not sufficiently prove, why this should more frequently happen from a plethora, occasioned from a suppression of the *menfes*, than from blood accumulated in the body from any other cause.

The very same cause which opens the uterine vessels (which I publickly confess I know nothing of) might have the very same effects, if applied to other vessels of the body. That this cause however of whatever kind it may be, must lie in the vessels themselves, independent of the heart's peculiar action, is very demonstrable; for notwithstanding the heart goes on in one uniform course of action, yet a disturbed motion is sometimes observable in particular arteries, preceding hæmorrhages—thus a pulsation felt in an ulcer,

ulcer, frequently declares an hæmorrhage to be near at hand, a pulsation in the left *hypochondrium*, as often precedes a copious bleeding at the nose, even in persons seemingly in good health. *Mulieri menstruis deficientibus, sanguinem ex naribus bonum*, says *Hippocrates*.

It is observed by this same divine physician, that the hæmorrhoids do not appear before the time of puberty, nor after the age of forty-two: now the menstrual flux is pretty nearly limited to the same period of time. We have the testimony of very eminent physicians of the quick and surprising relief they have seen procured from the application of leeches to the hæmorrhoids, in a suppression of the *menfes*. I have known several women, who have had an evacuation of blood every month, both by the hæmorrhoids and from the *uterus*, and the deficiency of one of these

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these discharges has been curiously supplied by the abundant discharge of the other—nay even according to some authors, the hæmorrhoids are not only to be found in the *Intestinum rectum*, but about the *uterus* itself—*Hæmorrhoides quidem raro in mulieris sinu inveniuntur, sed frequentius in collo matricis & orificio ejus, nasci solent.* vid. Harmon. gynæc. part. poster. Spach. p. 33.

When we consider the communication between the breasts and the *uterus*, we shall have no reason to be surprised to see the blood derived, upon a suppression of the *menfes*, into the breasts and so sometimes pass out at the nipples. *Hippocrates* observes, “*At conclusi uteri menfes ad mammas remittunt, & ad pectus ascendere cogunt.*” *Ambrose Parey* gives us the case of a woman whomonthly menstruated at the breasts, so as to be obliged to have three or four cloths in readiness to receive the blood.

Though

Though the vessels of the skin in general allow a passage only to the most fine and subtle parts of the fluids to pass through them, yet they are so capable of dilatation, that they will sometimes discharge the blood itself. It has been observed, that the sweat which is thrown out in consequence of hard labor and exercise in the very hottest months of summer, has tinged the linen red, and more particularly under the armpits.—

The menstrual blood, when it cannot obtain a passage by the usual outlets, will force its way through different parts of the body; of which many instances and curious cases may be seen in the writings of the learned.—

We should be very attentive how we act with our patients about the time of their beginning to menstruate, otherwise we may commit many errors in practice of the most dangerous con-

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sequence; for at this time they may be seized with other disorders, which may not depend upon the approaching menstruation, but arise from causes extremely different; and yet it is no ways uncommon to see every thing ascribed to this cause only, not alone by ignorant women, but even by physicians, less attentive to every minute particular circumstance, while they are engaged, or rather overhurred by a large and extensive practice, I have known very powerful emmenagogues proposed in the beginning of the small-pox, when it has been attended with a pain in the back, a redness of the face, a shivering and some other febrile symptoms.—Mothers are frequently too solicitous, at a certain period of life, and almost oblige physicians, to administer every remedy they can think of, to bring down the *catamenia*. Whereas it is the proper business of nature,

nature, so to dispose the *uterus* by slow degrees; and gently dilating the extremities of the vessels, properly to send forth the menstrual blood.——

When therefore the usual time of life is at hand, and both the breasts begin equally to swell; when we observe the body suddenly to grow, and that the face looks more than commonly florid; if at the same time a pain in the loins, and in the small of the back, a stiffness and an obtuse pain about the neck and groins be perceived, we may then be pretty certain that the female body is disposed for the menstrual eruption: It will then be proper to assist the first efforts of nature by gentle bathing, friction of the legs and thighs, and the milder emmenagogues. In some, though not very often, the first *menstrua* flow without any uneasiness, and, the vessels of the *uterus* being once opened in this man-

ner, the after-periods have gone on regularly, without any of these fore-mentioned symptoms; at least they seldom appeared, or when they did, were never very sharp or severe.

The *hymen* naturally allows a sufficient aperture for the passage of the menstrual blood: but it is sometimes observed to degenerate into a very dense membrane, without any opening whatsoever. *Diemerbroeck* affirms he once dissected a young woman three and twenty years old in the publick anatomical school, and found this membrane entirely continued, without any perforation at all, and so strong and firm, as to have resisted the most vigorous efforts of the stoutest assaults any male champion could have made upon it.—These are called *atretæ* or imperforated; we met with several such instances in medical and anatomical writers. Præternatural membranes of this kind are
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not only to be met with near the orifice of the *vagina*, but much higher also—a surprizing case of which we find in *Ruyfch*. A woman big with child (says he) had suffered most intense labor pains, insomuch that her cries filled the whole neighbourhood with her distressful condition, nor could she hasten her delivery by the most powerful and strongest efforts—being sent for, “*invenit membranam hymenem, integram, valde crassam & a fœtus capite, exitum quærente foras extensam.*” He found the membrane *bymen* entirely whole, immensely thick, and protruded by the head of the fœtus in its endeavors to make itself a passage. This membrane he divided with a pair of scissars, introduced upon a director, for fear of injuring the child’s head—the labor however was by no means advanced, for another mem-

brane presented itself, obstructing the passage of the *vulva* a little higher up—which being also divided, a fine stout male child was immediately brought forth, without injury to the mother, who in a few weeks was perfectly recovered, and both she and her boy were in good health, when *Raysch* first published this very remarkable case. What is most to be wondered at, is, that this woman should, notwithstanding this double membrane, be enabled to conceive at all.——

A suppression of the *menstrua* arising from such a cause, is easily cured by the hand of a skilful surgeon—and this may be very easily known, viz. if at the usual time, all the signs of the menstrual flux appear, without the least discharge; if the same symptoms return monthly, and the *uterus* at the same time grows more and more turgid, and
occasions

occasions the belly to swell; if this swelling is observed chiefly about the lower part of the *abdomen*, is of a spherical form, smooth, soft, and equal; or when you press it, nothing is perceived like the stirring of a child—if this disorder has continued for some time, and the swelling encreases so far, as greatly to exceed the common size of a woman with child, a little before the time of delivery.

It is necessary in the cure, that the menstrual flux come away in due time, and in proper quantity; but as the causes which prevent this may be various, so do they require different methods of treatment. Nothing general therefore can be determined upon this subject; but, in order to the obtaining of a successful cure, we must be particularly attentive to every minute cause which may occasion a suppression

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of the *menfes*; for if the most powerful emmenagogues are administered, when these outlets, by which the blood should naturally flow, are entirely shut up, they may do much mischief, without the least probability of doing service. It would be in vain to attempt to bring down the *catamenia* in a pale leucophlegmatic girl, where, for want of sound wholesome blood, the functions are all languid and disordered, unless we first endeavor to strengthen the lax and debilitated habit, so that by the power of the viscera, and the vessels, the nourishment she takes may be converted into good blood. If, on the contrary, the uterine vessels are so constricted, as not to be easily dilated and give an easy passage to the blood, an opposite method will be necessary; this resistance of the vessels is to be overcome by the use of soft and emollient

mollient remedies, both externally as well as internally prescribed.—

The legs and feet receive their vessels from the external iliac arteries; the uterus too not only receives them from the hypogastric but from the same external iliacs, and communicates by various *anastomoses*, it will therefore be very evident, when the vessels of the feet relaxed by warm bathing, and motion accelerated in those parts by friction, a greater quantity of blood will be derived toward the *aorta*, where it divides into the iliacs, and so cause a greater pressure upon the vessels of the *uterus*, and so dilate their extremities, as to give an easy vent to the menstrual discharge.

Warmth in the feet is particularly serviceable at the time of menstruation, *cold* on the contrary very destructive: all the viscera of the abdomen are badly affected

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affected when the feet are intensely cold, no wonder therefore that a suppression of the *menfes* should happen in consequence of a contraction of the vessels. Warm bathings and frictions of the feet therefore are highly serviceable in driving off the cold, and recalling and encreasing the heat in the lower extremities of the body, as they accelerate the blood's motion, and derive at the same time a greater quantity of humors into the legs and feet; since however the lower extremities receive their blood from the external iliac arteries, but the *uterus* chiefly from the hypogastric, it will evidently follow, that the more the vessels of the legs and feet are tumefied and swelled, so much less will be the pressure upon the uterine vessels; and therefore if by means of warm bathing and fomentations and frictions of the
legs

legs and feet the blood's motion is accelerated through the iliac arteries; the passage of the blood through the crural artery may be impeded or lessened, the force and quantity of blood moving through the uterine vessels would certainly be encreased, and so remove such obstacles, which could not have been done by any other means.

Venaesection is only necessary in a suppression of the *menfes*, when all the signs of a *plethora* are present; for if they are defective, from a scarcity of good blood, in bodies already exhausted by former diseases, *repletion*, not *evacuation* is, then the remedy. Nor even, when the *plethora* itself shall have degenerated into a *cacochymia*, is it then always requisite to open a vein, but rather to take some other evacuant remedies, which, without lessening the quantity of good blood, may draw away

away the peccant humors out of the body, or so change them as that they may again acquire the nature and disposition of the sound humors.—“*Hydrops in ventre a menstuis magna ex parte, vel omnino deficientibus plerumque oritur*, says Manningham:” if a dropfy then is once formed from this cause, who would venture to prescribe bleeding? and yet it may be of service in the suppression of the *menstrua* itself, which was the original cause of that dropfy.

Since the circulation of the blood has been known, the advantage of bleeding in the feet, to encourage the menstrual discharge, has been more clearly understood; and although indeed it is not of service in every suppression of the *mensēs*, yet it is greatly so in many cases. If a tension and sense of weight be felt about the pubes
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and groins, and a pain about the loins, at the time when the menstrual period is at hand, we know that the uterine vessels are quite full and distended, though the extremities of the arteries opening into the cavity of the *uterus* may not, at the same time, be sufficiently dilated to allow the distending blood to pass. Should these vessels then, after warm bathing particularly by way of vapor, be relaxed, and the motion through the repleted vessels be, at one and the same time, encreased, we may then pronounce there are hopes of getting so far the better of that resistance, towards their extremities, as to procure an easy discharge of the menstrua, and of course a relief to all these troublesome complaints.

The *pletthora* distends the larger vessels, alters the secretions through the smaller vessels, compresses the veins,
and

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and so by the tumefaction of the larger branches shuts up the extreme orifices of the smaller arteries, whence a free circulation is prevented. Whilst the uterine vessels then are thus distended, they will be unable to contract themselves, or to send the blood forward which is contained within them, and every thing consequently will tend towards stagnation. As soon as a vein is once opened in the feet, the blood will be driven more rapidly and in a larger quantity into the crural artery, the uterine vessels will not be so much pressed, nor so greatly distended; hence the arteries will begin to contract themselves and send the blood forward into the veins, which may now freely empty themselves into the iliac vessels, which are at this time not so much distended: hence a free circulation through the substance of the *uterus* will return, the
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furthermost extremities of the arteries will be easily dilated, and the *menfes* before suppressed, be again restored.—

The circulation of the blood, it is well known, is greatly obstructed in plethoric people, and, the vessels being too turgid, they seem dull, stupid, and sluggish. As soon however as this plenitude is taken off by a plentiful bleeding, the motion through the vessels is restored, the pulse before obstructed rises, and becomes quicker and stronger, the body acquires a sudden vigor and briskness, and a circulation of all the humors is again restored to all the vessels. This is applicable to the *uterus* distended in its vessels by the accumulated blood, which cannot pass through the extreme orifices of the vessels—bleeding in the feet therefore obviates all this, and brings on a free discharge of the *menfes*. If the
menstrual

menstrual discharge be suppressed upon account of an universal fulness, then, after bleeding, the antiphlogistic purges, which dissolve and evacuate the humors without encreasing the circulatory motion, may have their uses.—

“*Si vero menses, says Hippocrates, omnino non prodeant, pro morbo crassi, lenti, & glutinosi redduntur; imprimis igitur ventrem sursum ac deorsum purgare oportet.*”

for there are even hopes, from the very shock itself given to the body by purgative medicines, that the menstrual flux may be promoted, while, at the same time, every thing that is tough, viscid, and glutinous is removed and carried off; but care must be taken nevertheless not to raise an *hypercatharsis*, which may occasion weakness from too great an evacuation—for this reason in the *materia medica*, among the uterine purgatives of this class, are reckoned

myrrh,

myrrh, gum ammoniac, bdellium, &c. which move the belly moderately, and even require a larger dose to effect it; whilst at the same time their aromatic flavor, so benign to the nerves, fills the whole course of the first passages, dissolves the flatulencies so frequently troublesome in such cases, and rouses the languid action of those *viscera* by a grateful and yet not too heating a *stimulus*.

Aloes is a good purgative in these cases, it purges downward, and strengthens the stomach, this is confirmed by *Celsus*, “*sed medicamenta stomachum fere lædunt; ideoque omnibus catharticis aloë miscenda est.*” This medicine in a lesser dose, and frequently given in the quantity for example of three or four grains, and mixed with the above-mentioned aromatic gums is of excellent efficacy in a suppression of the
VOL. II. X *menfes,*

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menfes, as alfo when a customary difcharge of blood by the *hæmorrhoids* happens to be ftopped—

The great Dr. *Mead*, in order to attenuate and difsolve the fluids when ftagnating in the veffels from too great a vifciditiy, recommends mercury fix times fublimed—but above all the black hellebore, which he declares feldom or ever to have found to fail—he ufually gave a tea fpoonful of the tincture twice a day in a little warm water.

Different authors have recommended different methods; but the remedies are almoft always of fuch a kind as act either by encreafing the motion of the humors, or by their difolving power, or by thofe both united together. But if the expulfive powers are roused up into action by thefe ftimulating medicines, before what is to be expelled, is properly attenuated, or the outlets by

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by which it is to be discharged are sufficiently pervious, all the complaints will be exasperated from the use of hot emmenagogues, and dangerous hæmorrhages happen in different parts of the body, from the vessels of the uterus remaining so obstinately constricted.—The ancient physicians were very careful in this particular, and used every method to dispose the vessels to an easier dilatation, before ever they attempted warm emmenagogues; or they at least joined emollients along with them.

If the eighth part of a grain of *colocynth* be administered every three or four hours, it will not act as a purge, but will be of wonderful efficacy in languid phlegmatic habits, as it increases the heat and motion by a gentle and moderate stimulus; it may be very conveniently mixed with *myrrh*,

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galbanum,

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galbanum, or any other gum recommended under this head.—

“ *Mulieres*, says the *Coan*, *autem* *ficciore victus ratione sic uti oportet, sicca namque cibaria ad muliebrium carniū mollitiem magis sunt idonea & meraciores potus ad uteri & fœtus nutritionem meliores existunt.*” Daily experience confirms the truth of this observation, for where women indulge themselves too much in that very bad custom of drinking warm watery infusions, and at the same time use little or no exercise, they become delicate, relaxed, and inactive, are very seldom prolific, and when they do conceive too frequently suffer miscarriages; *Lycurgus* therefore, as a very wise legislator, exercised the bodies of the Spartan virgins in running, wrestling, throwing the quoit and javelins, so that the very root of the fœtus, taking stronger engraftment

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in bodies so healthy, might grow more vigorously, and that they themselves, bearing their offspring with such activity and briskness, might encounter the pains of child-bearing with more ease and safety—thus did he take care to extend his attention to the future offspring; knowing that the soft and delicate, even when joined to stout and robust husbands, produce but a puny, weak, and sickly progeny—τα μὲντοι σωματα των περαθενων,δρομοις, και τταλαις, και βολαις δισκων, &c.

Plut. Vit. Lycurg. p. 47, t. i.

Of the Diseases of Women with Child.

HIPPOCRATES, among the most certain marks of conception, reckons the following; a shivering cold, then an universal heat, a chattering of the teeth, a convulsion of the joints and other parts of the body, and a torpid sensation in the *uterus*—another chief indication “*si mulieri (says he) purgationes non prodeant, neque horrore, neque febre succedente, ciborum fastidia, ipsi accidant hanc gravidam esse ratione dicito.*”

Some women with child are observed to complain of a universal *nausea*, or loathing, insomuch as to have an aversion to every kind of eatable
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whatsoever—many are only partially so to some particular food—others again will long for things, about which they were heretofore very indifferent: I have known some married ladies, who, from this appearance only, were well assured of their being with child, though no other previous symptom had determined it. Women frequently, while breeding, are attacked with violent tooth-achs; others again are seized at that period with pains in the ears, and that on one side of the head only, to which they were never subject before. In short many and various are the symptoms which attend women in the beginning of pregnancy.

However, it has been universally acknowledged by men of the greatest eminence as well as experience in the practice of midwifery, that the signs of pregnancy, especially in the first

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months of conception, are not entirely to be depended upon.—

There is nothing in which a physician may so soon forfeit his character as in his determining about the pregnancy of women; he should give his opinion with the utmost caution.—

“*Qui utero gerunt, iis os uteri connivet.*”

Galen, in his commentary upon this aphorism, looks upon this closing up of the *uterus* as one of the most certain signs of pregnancy, when the midwife can reach it with her finger; for in the beginning of conception it sometimes lies higher up in the *vagina*; but in order to draw a certain conclusion by which the pregnancy is to be determined, for the orifice of the *uterus* may be diseased, inflamed for instance, or schirrous, it is requisite, that the *os uteri* be not only shut, but feel soft likewise.

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The blood retained in pregnant women is not so much intended for the use of the *embryo* itself as of the *uterus*; from this uterine blood the finer humors are separated for the use of the *embryo*, but no red blood comes near it in the beginning of conception. I have had occasion to examine several of the smallest embryos excluded together with the membranes and the *placenta*; but I could discover no red blood, either in the little body of the embryo itself, or in the membranes, or in the *placenta*, which at first, as it is well known, covers the whole surface almost of the *chorion*. But the *uterus* being entirely vascular, becomes gradually distended, so that its cavity, so small in women not with child, shall by degrees be so dilated, as to be able to contain the *fœtus* together with its secundines, and the water collected in the membranes.—

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The antient physicians as may very demonstratively be proved applied every thing they had seen and observed concerning the *uterus* of animals (for they had never seen any other) to females of the human species. Thus the division of the cavity of the *uterus* into right and left, which we find in the forked *uterus* of brutes, is very unjustly ascribed to the human *uterus*—The womb of brutes is membranous and very thin—the human womb is quite of a different consistence.

Mauriceau obstinately defends the opinion of the ancients and particularly of *Galen* concerning the thinness of the gravid *uterus*, and this he endeavors to prove by a variety of authorities: he was shocked to think that many very eminent anatomists should imagine that a gravid *uterus*,
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of Women with Child.

by a kind of miracle in nature, the more it was distended should encrease the more in thickness. He even appeals to their ocular inspection, whether there is not an absurdity in maintaining such an opinion.——He would have the same thing obtain in the *uterus* which is observed to take place in the urinary bladder, which when empty, appears thick, but thin and membranous when distended with urine—he confesses indeed, that in the bodies of women, who have suddenly died soon after delivery, he has found the uterus near the breadth of two fingers in thickness, but this he attributed to the contraction of the uterus when empty—he owns also that the uterus has been found thick in women who have died without being delivered—but insists on its being preternatural, and occasioned by inflammation, and from the afflux of hu-

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mors after the long and fruitless pains suffered in the time of labor.

Daventer, a celebrated man-midwife, and who has wrote professedly upon this subject, refutes this opinion with great judgment.—*Littre* accidentally saw what *Mauriceau* earnestly wished for, in order to be convinced of the thickness of a gravid *uterus*; he saw it about eight lines thick (a French line is the twelfth part of an inch) in a woman, who, on the eighth month of her pregnancy, was killed by a fall.—

Mery, a celebrated writer, saw the same thing in a woman who died about four hours after her delivery—from which it is plain, that the thickness of the empty *uterus* is not owing to its contraction, as *Mauriceau* imagined; for a full *uterus* exhibits the same appearance

Daventer observes very ingeniously that the thickness of the womb is one
cause

cause which prevents the *fundus* from being easily inverted after delivery, and by forcing its way through the capacious orifice of the *uterus*, bringing on a troublesome *prolapsus*, especially when the placenta is removing; if the *uterus* was thin and membranous, such events could hardly be prevented—this seldom happens as the same person who was a very distinguished practitioner in midwifery declares, and then only (to use his own words) *si scilicet insigniter fuerit tenuis, tunc quidem circa manum complicatur instar lintei madidi, neque tam cito tam facilisque contractio est; quod mihi non arridet; quin potius mallet, eum consuetam servare formam, & statim a partu rite contrahi, & circa manum nondum retractum claudi, quod multo pauciora symptomata tunc extimescenda sint.*"

The ingenious Dr. Noortwyck having considered this subject thoroughly well,

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is of opinion that the *uterus*, for the most part, retains its former thickness—the gravid *uterus*, according to him, appears not much to exceed the natural thickness of the *uterus* before impregnation; whence he very justly infers that in women with child, the substance of the *uterus* may sometimes encrease, sometimes remain the same, and if it sometimes chance to become thin, it must be considered as a rare and extraordinary case. Now seeing the uterine vessels do not all run in the same plane, but by various interstitial divisions, between the lamellated substance of the *uterus*, and that these vessels are, during the time of pregnancy, considerably dilated and replete with blood; it will be very evident that an attenuation of the *uterus* could not at this time take place according to the rules of nature, but if it did, must have been owing to some preternatural

ral or morbid cause. Again, the greater the quantity of blood is, with which the uterine vessels are distended, and of course more dilated, so much the more will the substance of the *uterus* be increased in thickness, whence we easily see why it differs in thickness in different subjects—the same author very accurately describes how capacious those vessels may be found and how large the sinuses of the *uterus* may be when filled with blood and communicating with the *chorion* and *placenta*.—

The celebrated *Albinus* has also given us five drawings by which we may observe how large the vessels are, which fill the substance of the *uterus* during the time of gestation; whence *Du Graaf* compared the *uterus* in women big with child, to a sponge filled with blood, and was amazed to consider how the same after delivery, should

should so contract, as to return to its former dimensions in the space of sixteen days; the blood which distended the vessels of the *uterus* during the time of pregnancy, going off by the flowing of the *lochia*.

It is evident that the menstrual blood, which in women with child according to the laws of nature is retained within the body, serves not only for the accretion of the *fœtus*, but is also necessary for the distending and filling the vessels of the *uterus* at the same time. How admirably does this correspond with the doctrine of *Hippocrates*! “*Ubi enim mulier utero gerit, paulatim a toto corpore sanguis in utero defertur, & in orbem id, quod in utero est, circumfistens, ipsum auget.*”

The human *ovum* not only everywhere contiguous to the concave surface of the uterus but connected with it, is perpetually cherished by the constant

stant warmth of the red blood plentifully contained in the substance of the surrounding womb; and thus an incubation goes on within the woman's body, which in oviparous animals is performed without their bodies; and thus we see to what admirable uses the blood is assigned which was before accustomed to discharge itself monthly, but is now retained within the uterine vessels, and contributes to fill and distend them by a gentle and gradual dilatation. The great *Harvey* ascribes the first part of the formation and growth of the embryo to the red blood; nay he maintains it to exist even before the heart or vessels, and that with it, life itself, begins, on its entrance into the world, and expires with it when life is in its last period.—

It is well known, that in a fecundated egg the first rudiments of the chick may remain a long time con-

cealed, without any signs of life or encrease. Let a due degree of heat, whether by the fitting of the hen, or by any other methods, be applied, and we immediately find motion, life, and a gradual encrease, and that indeed in so quick a progression, that in the space of twenty days, the most minute *molecula*, before eluding the acuteſt ſenſe, ſhall now exhibit a chicken in full perfection, which having, by its own native force, broken through its ſhell, in which it had been impriſoned, running about at perfect liberty. That plentiful circumfuſion of warm blood continued through the uterine veſſels, ſeems in like manner to be of no inconfiderable aſſiſtance towards the growth of the human *embryo*.

Sometimes the *omentum* ſeems to be convolved and twiſted by the riſing of the *uterus* — if therefore, either from
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the compression of the womb, or from any other cause whatever, the *omentum* becomes dry, and shrunk up, the concretion of its *lamellæ* may be apprehended; nor shall we be able, after delivery, to disentangle it, so as to replace it properly: *Ruysch* frequently observed hard tumors, of an oblong shape, remaining in the *abdomen* after delivery, and confesses he was long doubtful what to think of them, till in the dissection of a dead body, he discovered the cause, for he saw “*omentum duos fere digitos crassum, tres digitos latam, spithamam cum dimidia longum, & in substantiam adipo-carnosam degeneratum, atque insuper scirrhosum.*” But this bulky mass (as represented in his tables) adhered above to the bottom of the stomach, and below to the *fundus uteri*; it therefore seems very probable, that the *fundus uteri*, when it ascended, had raised the *omentum*, and

pressed it to the bottom of the stomach, and firmly attached itself to it, and that after delivery the *uterus* contracting drew the attached part of the omentum along with it, and so produced that oblong tumor in the abdomen.

In case a nausea, vomiting, or loss of appetite continue too long, a filthy collection of depraved humors may sometimes be lodged in the stomach and in the *primæ viæ*, which should be carried off, and the more especially if attended with disagreeable belchings, a bitter taste in the mouth, or a foul tongue—a gentle purge of rhubarb is in this case of great use, any of the rougher kind are dangerous.—If there is no great *plethora* (and if there is, after taking away a little blood from a vein) a little generous wine may be allowed in small quantities, and they almost give instantaneous relief, this is agreeable to the sentiment of *Hippocrates*,
“ *meraciores*

"meraciores potus ad uteros & fœtus nutritionem meliores existunt."

The very rapacious and absurd longing of women with child is remarkable though not to be accounted for—*Tulpius* says he saw a woman who during the time of her pregnancy eat fourteen hundred herrings.—My father-in-law, a gentleman of the strictest honor and veracity, told me of a woman big with child who came into his rope-walk and looked very wishfully at a barrel of tar, and every now and then sily dipped her finger into it, which she as eagerly put into her mouth—observing this he spoke to her, and asked her whether she had any inclination for some; she replied that she had, and would be thankful if he would permit her to dip a penny roul into it, he told her she might, and as many more as she pleased—he saw her

do so, and eat it with a devouring appetite.—

Fainting fits frequently happen from the turgid *uterus* pressing upon the iliac veins, whence a great quantity of blood being retained in and below the *pelvis*, prevents its return to the heart, at least some part of it, whence the force of the heart is much weakened.—

A difficulty of breathing is mostly observed towards the close of pregnancy, when the belly is so big, as to give very little room to the diaphragm to move downwards, and the abdominal muscles are so greatly distended as to be unable to give their assistance.

Mauriceau absolutely forbids the use of discutients, in swellings of the breast, but to leave all to nature—he charges those who attend women upon those occasions not to press them when thus swelled too much by wearing
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ing the cloths too tight above them, for fear of doing mischief.

We may very properly distinguish the times of abortion into three different stages; the first when the *placenta* disengages itself from the *uterus*. It is well known that the human *ovum* adheres most firmly to the *uterus* at the place where it is connected by means of the *placenta*, with which the large vessels of the womb communicate, which when this communication is destroyed, pour out a great deal of blood, which still encreasing, gradually loosens the adhesion of the *chorion* to the *uterus* till it discharges itself by the *os uteri*; this is called the second stage of abortion. The third and last is, when the *fœtus* comes away before its due time.

Now if the symptoms which usually attend the first months of pregnancy be remembered, it will very

easily appear how frequently the destruction of this tender connexion of the *fœtus* with the *uterus* may be apprehended. Vomiting or any shock to the *abdomen* only, may produce this accident, especially if they be strong and frequent, and it will be still more dangerous if the vessels of the body happen at the same time to be full of blood. — And therefore it is, that abortions most commonly happen about the third month; because the connexion of the *fœtus* to the *uterus* is as yet but feeble, and in women of a sanguine habit who have been subject to large menstrual discharges, the uterine vessels are very turgid and full of blood. Bleeding indiscriminately in every woman with child is by no means necessary, nay nor always proper, and frequently is of a bad tendency.

Women who are accustomed to have large menstrual discharges when they are

are not pregnant, who feed richly and luxuriously, and use little or no exercise, are frequently plethoric in the first or second months of their pregnancy; to such I have generally and universally advised venæsection, conscious that they otherwise run the risque of a miscarriage—the same precaution is necessary, upon a violent fit of anger, when I have in an instant seen the vessels filled and turgid, the face red and tense, and the eyes blood-shot.—It is too general a practice nevertheless; and physicians have not the courage to oppose it, for fear, if any ill consequence attend the neglect of it, it would be ascribed to them.—“*Mulier utero gerens, (says the incomparable Hippocrates) vena secta abortit, eoque magis, si fœtus grandior fuerit.*” However daily experience informs us that this does not altogether hold true, for
a mis-

a miscarriage does not always follow bleeding.—If a woman be pale and languid, the physician will certainly not direct blood to be taken away, but if on the contrary she is sanguine, warm, and the veins are turgid and full, if she has an head-ach, a running at the nose, or feels a tension about the loins, *pelvis* and groins, then indeed he will open a vein to prevent an abortion which might happen from too great a plenitude of the vessels, always at the same time remembering what *Celsus* has excellently laid down, “ *mulieri prægnanti post curationem quoque viribus opus est, non tantum ad se, sed etiam ad partum sustinendum: non quidquid aut intentionem animi aut prudentiam exigit, protinus ejiciendum est; cum præcipua in hoc ars sit, quæ non annos numeret, neque conceptionem solum videat, sed vires æstimet, & ex eo colligat, possit, nec ne, superesse quod*

quod vel puerum, vel unum, vel in una muliere, duo corpora, sustineat." From the whole context of this passage it is evident that the dispute is only, whether in case of diseases it was right to bleed women with child, and not whether the same was necessary in sound healthy pregnant women. We have frequent opportunities in practice to be convinced that bleeding in acute and inflammatory diseases is highly necessary, and that too, often repeated even in the time of pregnancy. High-seasoned meats and spices and every thing acrid and sharp should be avoided or at least very sparingly used, for a soft and mild disposition of the mother's humors is of great advantage to the child in that tender condition. "*Prægnantibus hypochondrii dolor malum;*" now if the *fundus uteri* ascends obliquely towards the right side (for when

when *Hippocrates* puts this word in the singular number, he always means the right *hypochondrium*) it will press the bulk of the intestines towards the concave part of the liver, where the gall-bladder, biliary ducts, and trunks of the *venæ portæ* are situated, and will by that means produce a number of disorders.—

There is some danger when the lips of the *pudendum* swell, and are œdematous, because such a swelling may obstruct the expulsion of the fœtus; yet œdematous swellings of this kind easily yield; and I have seen a woman, who had these parts surprisingly swelled, and though she obstinately refused to do any thing for it, yet went through her labor extremely well, though the midwife, frightened at the enormity of the tumefied parts, had despaired of success.

Neither

Neither is the cure of this troublesome swelling so difficult, for, by slightly scarifying the lips of the *vulva*, the watery lymph easily finds a passage, and the swelling soon subsides.—A blister might also be applied with very good success; it must however be so laid on, as partly to lie upon the swelled lip of the *pudendum*, and partly upon the adjacent part of the thigh.

An inflammatory swelling of the lips of the *vulva* attended with a fever is of infinite danger, especially when delivery is near at hand, for the interior parts of the *vulva* are generally inflamed at the same time; and the most skilful practitioners in midwifery have always observed that women so affected die very soon after the delivery—for the parts so inflamed when they are hard pressed upon, or very roughly handled, very soon become gangrenous;
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this therefore is very naturally to be feared, when the child's head in time of delivery presses and squeezes these inflamed parts, nay even sometimes lacerates the swelling.

A flux of blood from the *uterus* in women with child is ever to be suspected; though there may not always be a little degree of danger attending it—but when it happens during the highest degree of distention of the uterine vessels, that is in the last weeks of gestation, it then becomes highly dangerous; whence the following rule is laid down as a certain practical maxim, “*Quo partui propior est mulier, eo periculosior est hæmorrhagia uterina.*”

Hence numbers of women escape who have had this uterine discharge in the second, third, or fourth month: abortions mostly happen at those periods, seldom after.—*Puzos*, a very celebrated

brated man-midwife, observes, that during his whole practice, he had very seldom known any carried off by a flooding before the fourth or fifth month of pregnancy, unless it was attended with some other dangerous disease, or had been unhappily deprived of the necessary helps in these cases. He much feared for the consequences, when the same thing happened in the seventh, eighth, or ninth month; for notwithstanding the hæmorrhage may not be so very violent before delivery as in other abortions, yet very many of these die soon after they are delivered.——

The *placentæ* of abortions are more difficult to bring away than those of a foetus arrived at its maturity, because the umbilical cord is very tender and more liable to break with the smallest force, and in younger foetus's the *placenta*

tenta is proportionably larger and occupies a larger surface in the *uterus*.

I twice had an occasion to attend a woman in an acute continued and putrid fever, in consequence of some grumous concreted blood remaining in the *uterus* after a three months abortion; one of these died in the fourteenth, the other was carried off on the seventeenth day of the disease.

Mauriceau has observed that women with child are in the utmost danger who miscarry while they are under the attack of a continued fever which generally is of the remittent kind, and more particularly so if the breast be affected; he says, he saw many of these to his great concern die very quickly after the miscarriage; *Hippocrates* was aware of this when he says, "*Quæ utero gerentes a febris corripuntur, & vehementer citra manifestam causam extenuantur,*

tenuantur, pariunt difficulter & periculose, aut abortientes periclitantur."

That a woman with child through great loss of blood may be carried off by an hæmorrhage or flooding from the uterus, is not the only danger we have to apprehend; for though she may get the better of this, there is still more to fear from the great loss of blood, and sudden and frequent faintings, that is, of her falling into very difficult disorders of the chronic kind, as a cachexy, dropsy, &c. we may also in consequence of long continued and frequent *syncope's* expect that the blood stagnating in the heart and larger vessels, may form itself into polypous concretions.

During the time of pregnancy, the vessels of the *uterus* are continually enlarging, when the time of delivery approaches, they must consequently become large and capacious, so that when

the *placenta* is separated from the *uterus*, the wide orifices of the enlarged vessels, must pour out the contained blood in a full uninterrupted stream; but a flooding of this sort is far more dangerous, because in pregnancy the *uterus* continues to be filled up, whereas after delivery, when once the *placenta* is brought away, the empty womb may then contract itself, and so lessen the capacity of the vessels, and of consequence diminish the hæmorrhage or flooding.

An hæmorrhage from a rupture of the vessels contained in the umbilical cord is a circumstance which very rarely happens. *La Motte*, an eminent practitioner, declares he never met with such an instance but once. He was assisting at a labor, where he expected an easy and natural delivery: the waters were formed; but just as they were ready to break, he observed
his

his hand stained with a little blood, and (as it very frequently happened) so concluded the child would soon follow. A little after, the waters were broke, and the child's head presented itself, but a large quantity of blood gushed out at the same time, which encreased at every labor pain. He was firmly persuaded, that the hæmorrhage must be occasioned by the loosening of the *placenta* from the *uterus*; neither could he now turn the child, in order to hasten delivery, by extracting it by the feet, because the head was got down into the *pelvis*, and the woman's labor pangs were become so violent, and continual. The patient, being however a woman of great resolution and courage, and conscious of the danger she was in, so forwarded the delivery by her repeated and strenuous efforts, that in a very short time she brought forth a girl, but very weakly;

what had rendered the labor so tedious and difficult, was, that the umbilical cord had twisted itself three rounds about its neck—the woman happily escaped, and had seven more children without any the least accident happening to her: soon as the infant came away, the flooding ceased immediately, and upon examining the umbilical cord, it appeared that one of the varicous knots, so often observed in the umbilical vein, having been opened, as it were by excoriation, had discharged its blood; this, from the mutual pressure and attrition of each circumvolution of the umbilical cord round the infant's neck, might very easily happen. But it is at the same time very evident, that the true cause of this hæmorrhage could never have been known before the delivery had been well over; and till the membranes were already broken, this very
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ingenious surgeon could scarcely suspect such a circumstance, for he had never seen any thing like it before in all his practice, and the loosening of the *placenta* from the *uterus* had always been most generally considered as the cause of this uterine discharge.

Naturally the human *ovum*, by every part of its surface adheres to the cavity of the *uterus*, which effectually prevents any thing from passing out by the uterine vessels; and even at the time of delivery, when the *fœtus* is come away, hardly any blood, or very little at least follows, although the *chorion* is on every side separated from the *uterus*, during the exclusion of the child, but as soon as the *placenta* is disengaged from the *uterus*, the blood then comes away in a large quantity, and not before. During the time of pregnancy the vessels of the *uterus* are continually enlarging,

consequently when the time of delivery approaches, they become very large and capacious, so that when the *placenta* is loosened from the *uterus*, we must then expect a full and uninterrupted stream from the wide orifices of the enlarged vessels; if therefore the blood comes away in large discharges from women in the time of pregnancy, we may reasonably take it for granted that the *placenta* is separated from the *uterus*, either entirely or in part.—Now a flooding of this sort is far more dangerous, because in pregnancy the *uterus* continues full; whereas after delivery, when the *placenta* is once brought away, the empty *uterus* contracts itself, and thus lessens the capacity of the vessels and of course in a great measure stops the hæmorrhage. But there may be other causes to bring on a flooding as may be seen at large in *Mauriceau*, *La Motte*, and

and other eminent writers in midwifery.

Noortwyk injecting a branch of the iliac artery of a gravid uterus, observed the wax penetrated very deep into the vessels of the *placenta* and *chorion*: upon lifting up the preparation and attempting to separate the *human ovum* from the *uterus* to which it was connected, he could plainly discover the *chorion* to be joined to the *uterus* by a true cellular substance, which might easily be separated upon the slightest attempt; in like manner he observed the *ovum* to adhere to the womb in general, but about the *placenta* the adhesion was much stronger, and the vessels at this place more numerous.——

Levret has remarked that when a woman with child was obliged to use mercurial frictions for a *lues venerea*,

and by which the fœtus was also cured, he found manifest proofs of mercury in the water contained in the *amnios*, for it had a leaden color and when rubbed upon copper changed it white, and this so much the more, by so much the more mercury had been used in the friction.

It is very justly esteemed a pretty certain sign of a speedy delivery, when in the time of delivery a small quantity of blood is observed when the waters are formed, as the midwives term it, and greatly dilating the orifice of the *uterus* appear on the outside of it a good way: for the membranes cannot possibly project out so far, but many of those vessels which serve to connect the *chorion* with the *uterus* must be broken, and so discharge that small quantity of blood, with which we see the sheets, and the hands of the midwives so generally

rally tinged. Nor can a very great quantity of blood at this time come away, because, when these tender vessels are broke through, they immediately collapse, and the swelling occasioned by the water fills up the orifice of the womb entirely; when the waters break, the infant's head immediately obtrudes itself, and so fills up the same orifice. "*Mulieri utero gerenti, si mammae derepente extenuentur, ipsa abortit.*" Says *Hippocrates*; the reason of which is, that there may be danger; lest on this occasion the vessels of the *uterus* breaking their connexion with the *placenta* and *chorion* in like manner collapse, which can scarce happen without their being first emptied, whence an abortion is most likely to ensue, attended with an hæmorrhage from the uterus.

In women with child, unless it be very near the time of delivery, pains
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of the loins, if they continue long, are always to be suspected; especially if they return at intervals, and terminate towards the lower parts of the belly; for then they are real labor pains, by which the foetus however immature, must be excluded; and the miscarriage is frequently preceded by a very dangerous flooding.

Hæmorrhages from the uterus, notwithstanding they seem to be entirely ceased, are very liable to return again—frequently the stoppage is owing to coagulated blood applied to the gaping orifices of the vessels, and which are so well adapted to their diameters as to block up the blood and prevent its discharge—but when these clots drop off, the hæmorrhage returns, and that frequently in a larger quantity—great caution should therefore be had upon these occasions, especially in women with child, who have once had the

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unhappiness to experience this misfortune.

In violent hæmorrhages opiates and gentle ligatures on the veins only will be found very beneficial, stimulating cordials are injurious, instead of which we should direct nourishing broths to be taken often and in small quantities.

Whenever a dangerous flooding comes on, the child should be immediately brought away, and as *Daventer* observes, "*quocumque tempore, five ante five post septimum mensem* ; but this should however not be attempted, unless when it can be done without violently dilating the orifice of the *uterus*, and when it is so far open as easily to admit the operator's fingers.

Of Difficult Deliveries.

A Few days before delivery the swelling of the abdomen descends; the swelling in the upper part of the abdomen subsiding, an unusual pain is felt in the loins, urine comes frequently away, but with difficulty; a slimy humour flows from the vagina. These symptoms afford just grounds to apprehend that the time of delivery is drawing nigh, though they do not amount to a certain proof; for at the time that the child is turned, which was before placed with its head towards the upper part of the womb, many of these symptoms occur. This turning of the child often happens on the eighth month of pregnancy, sometimes

times sooner, sometimes later, and then delivery is thought to be at hand.— We should however not be too forward in pronouncing our sentiments about it. A woman with child is then most assuredly on the point of being delivered, when she feels a pain in her loins, which is not continued, but recurs by fits; which pain passing by the sides of the abdomen, ceases about the *pubis*, with the sense of a *tenesmus*—these the midwives call true labor pains; but false if the pains are only felt in the abdomen, or if after having begun in the belly, they run back towards the loins: for these pains do not promote the delivery, but rather retard it, and should they prove very troublesome, ought to be removed by opiates, and then the true pains will come on. The pulse then becomes higher and quicker, respiration appears to be more difficult whilst the
woman

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woman in labor, making an effort at every pang, keeps in her breath. All these symptoms encrease as delivery approaches, whilst violent pains succeed each other with a rapid succession:

"Affero autem (says Hippocrates) mulierem ubi pariat, crebrum spiritum emit-tere, &c. Tum vero potissimum crebro respirat, ubi partui proxima est, tumque maxime lumbis dolet; nam et lumbi a factu percutiuntur."

Mauriceau farther says that the pudenda then begin to swell, and that women in labor are at that time subject to vomit; which he asserts to be no bad sign, as it is vulgarly imagined, but an indication of an approaching delivery; this is confirmed by Sir Richard Manningham, who observes, that *"Vomitum vero inter puerperæ labores, si supra modo non sint, nunquam non utiles sunt."* But we are not for that reason to prognosticate a happy delivery, as unhappy accidents

may

may frequently happen unexpectedly and without any apparent cause—besides if a vomiting follows as soon as the violent pains begin to cease, we shall have reason to fear the womb is torn.

Mauriceau has also observed, that where delivery is at hand, the body of the woman in labor, trembles, especially the legs and thighs; and that she then feels no cold, but on the contrary feels a general warmth; this tremor however is by no means a bad symptom, but rather favorable—then or soon after, we shall find the humors which flow from the uterus, tinged with blood, which is justly regarded as a sign of an approaching delivery.—

“*Apertio oris uteri mulieris gravidæ non semper parturitionis est signum certum; nonnunquam enim orificium adeo patefactum in quibusdam invenitur, ut digitum inferri sinat mensem ante partum*” is a remark of *Manningham*.

Daventer

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Daventer prognosticates a happy delivery, “ si uteri infima pars in pelvem illapsa fuerit, ita ut in limine vaginae facile tangi possit: si os uteri, tenue, molle, lateque patulum sit, et per aperturam oris uteri deprehendatur, infantem capite ad exclusionem prævio sive pronoferrî, neque brachio neque funiculo umbilicali intercedente: si simul aquæ in latitudinem se complanent, nonnisi facilis celerque partus expectandus est.”

All these symptoms are favorable but yet nothing conclusive; for many things may happen to prevent an easy or safe delivery, such as a circumvolution of the navel-string round the neck or any other member of the child, an hydrocephalus, a swelled abdomen, or monstrous configuration, &c.

We should never attempt a speedy delivery in women who lie in for the first time, however impatient they may be; for it is very unsafe; we should rather

rather on the contrary proceed leisurely, so that the parts may yield gradually, and not be violently and too suddenly distended; and we should be very cautious at that time how we administer warm and stimulating cordials; should the patient be very languid and faint, and they are found necessary, we should even in that case be very sparing in administering them.

“ *Mulieri uteri strangulatione vexatæ, says Hippocrates, aut partus difficultate laboranti, sternutatio superveniens bonum.*” — Sternutatories however are not to be applied, especially if the woman's face be red and turgid, her eyes much swelled, and her head very hot, before previous bleeding at the arms, otherwise there might be danger of bursting some of the vessels of the head, and a mortal apoplexy be the consequence.

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Levret observes that when the entrance of the *pelvis* is of the larger size, the passage that leads from it is generally narrow and *vice versa*. In the first instance, matters are conducted expeditiously in the beginning of delivery, but towards the end it is greatly impeded; for then there will be less reason to apprehend a *prolapsus uteri*, and the midwife can assist the woman in labor, by gently keeping in the *os coccygis*, which being crooked before sustains the head of the child, and leaves a wider space for its coming away.

Women who have in the earliest part of life been subject to the rickets have, by the universal testimony of the best writers in midwifery very difficult and hard labors; as they are generally hunch-backed, are lame or have their back-bone distorted — though doctor
Brudenell

Brudenell Exton observes that the structure of the *pelvis* is not always ill-formed though the back-bone is distorted—be this as it will, it is certain that crooked and hunch-backed women have difficult labors, because they breathe with difficulty, and therefore cannot so well exert themselves in their efforts to forward labor.

If therefore the protrusion of the foetus becomes difficult upon account of the close connection of the bones, we should endeavor to soften them by smooth and emollient unctions, fomentations and vapor-baths.

Mauriceau denies a compleat separation of the bones of the *pelvis*, though he owns that their juncture may in some measure give way in the time of easy labor, but it cannot be denied, that in a difficult delivery the bones of the *pelvis* are separated from each

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other. This has been attested by the most eminent professors in midwifery; they found the ligaments soft and dilated, and the bones themselves separated.

The womb sometimes bursts in difficult delivery; although this happens rarely: the immediate cause of such an accident is the kicking of the fœtus when shut up in too narrow a pelvis, especially when the child is convulsed, which is frequently the case when it is at the point of death. The symptoms which precede a rupture of the womb are as follow: the fœtus having for some time remained motionless, is agitated suddenly, and occasions the mother to feel violent acute pains in that part of the womb especially which is threatened with a rupture; that is, about the fore part of the lowermost belly or epigastric region; these joltings return periodically, without any limitation

limitation to the intermediate space of time; the last and most violent agitations which are fore-runners of the child's death come at length, and then the motion entirely ceases; for the fœtus generally dies convulsed; to these symptoms *Crantz*, a very eminent writer upon this subject, adds the following, “ *vastum & distentum abdomen, retracta vagina orificium altum, dolores quidem veri, sed violenti, sine magnis intervallis frequentes, sine partus progressu ingrati statim ab initio aut medio naturalis nixus tempore, adsunt. Ruptis aquis, dolores vehementius instant, sine intermissione improbi, sine partus spe crudeles, ita mulierem discruciant, ut & ignarum vulgus his non enixam vehementer miretur, &c. donec tandem violentissimo subsultu elatus fœtus, contractum calcitru uterum perfodit, aut membro magis obtuso dilaceret.*”

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The same author afterwards considers whether the womb is broken whilst the waters remain collected, or after they have been discharged from the womb the membranes being broken; and then concludes with this remark, "*nihil certi in hanc rem statui posse; hucusque vero in bene descriptis observationibus uterus semper post effluxas aquas ruptus est.*"

If the following symptoms happen, we may be assured that the womb is already burst,—viz. If for example a fainting fit or great weakness should follow, the mind being uninjured; if the face becomes pale, the pulse is much weaker, if the abdomen swells with a big smooth tumor, attended with a sense of an unusual but not disagreeable warmth; if the extremities are cold, and we perceive the face dropping with cold clammy sweats, we may then expect

expect the poor patient will not hold out long, but will generally die in convulsions. Sometimes when the rupture happens the bystanders will hear the noise of a concussion, and after a fainting fit, the patient seems to recover; the motion of the foetus is seldom or ever felt after this, the pains of delivery are at an end; the limbs of the child which could before be felt in the mouth of the womb, are now no longer to be perceived; that is if either the whole or the greatest part of the foetus adheres to the cavity of the abdomen—in that case by touching the abdomen the parts of the foetus may be more easily distinguished by the touch than they could be before, whilst they still adhered to the cavity of the *uterus*.

It has however been justly observed, that this series of symptoms do not always occur; for some women with-

out any appearance of a rupture in the womb have died in a few hours, whilst others may live several days, in whom there should or at least might have been various and different symptoms according as the foetus which remains in the abdomen, presses and irritates the neighbouring viscera. Nor does the *fœtus* always pass into the abdomen upon a rupture of the *uterus*, for in an easy and natural birth, the child has been known to come out without the assistance of the midwife, the *placenta* immediately following it. The mother having died the same day, her body was opened, (says *Crantz*) and a rupture of the womb discovered.

We conclude the womb to be ruptured, and that the foetus adheres in the abdomen, when we cannot perceive the part which was before touched in the orifice of the womb; if pure or congealed blood passes through the pudenda;

puḍenda; if the orifice of the womb, as generally happens after delivery, seems inclined to close up, or that the womb collapses; the contrary symptoms indicate the foetus to be either wholly or in part still contained in the cavity of the uterus.

But as many of the symptoms of a burst womb are taken from the discharge of blood which runs into the cavity of the abdomen, the same might happen in consequence of any other hæmorrhage, although the blood be not collected in the abdomen. If the blood be discharged through the orifice of the *uterus* and *vagina*, the cause will be evident—but if the navel-string should be broken, the membranes being still unhurt, or if the membranes should be broke, and the head of the foetus stop and fill up the mouth of the womb, the same thing would happen, the cavity of the womb will

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will be filled with blood, the fœtus being convulsed through inanition will strike the womb, the woman in labor will become extremely languid and pale, and many other symptoms will come on similar to those which attend a rupture of the *uterus* either beginning or already happened; but this cause of an internal hæmorrhage, says *La Motte*, very rarely happens, and it never came under his observation but once in all his practice.

We find another case among the observations of *Levret*, where the umbilical chord was ruptured in the time of labor pains, and winding itself many times about the neck of the child, suffocated it. As the belly became more and more protuberant chiefly about the epigastric region, and felt hard to the touch, he apprehended an inward hæmorrhage, rather than a rupture of the uterus, for after an accident of that
 sort;

fort, the abdomen indeed fills with blood, but then the tumor is smooth and soft, by which symptom we may distinguish a rupture of the womb from an inward hæmorrhage which fills the whole womb with blood. Thus though nothing could be concluded upon with a nice critical certainty, yet it was easy for so consummate a judge as *Levret* to form a just diagnostic. For as the head of the foetus filled up almost the whole vagina, and was not moved forward by the violent and frequent pangs which lasted four hours, there was reason to suspect, that the umbilical chord twisted round the neck or some other part of the child, retarded its delivery; that there was room therefore to fear that the *placenta* to which the chord adheres, should separate itself from the *uterus*, and an hæmorrhage succeed.—Nor was he chargeable with
the

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the commission of any fault, in not knowing that the umbilical chord was broken, since that is an event which very rarely happens, nor can the physician or man-midwife know it to be so, so long as the fœtus fills up the whole orifice of the *uterus* with its head.

Levret is of opinion, and he was a man of great experience in these affairs, that no attempt should be made to take out the *placenta*, unless the midwife be certain that it is in such a state, as to admit of an easy exclusion, which it is, if before delivery, during delivery, or immediately after, there is a large discharge of blood from the *uterus*, for then we know that the *placenta* is at least partly separated from the womb, and that therefore an entire separation may be reasonably expected, if the navel-string be cautiously and gently pulled.——Nor should the attempt be made, till we have
reason

reason to imagine the womb has contracted itself. For sometimes the womb though disengaged from the foetus which greatly dilated it, sinks down flat and flaccid, especially after a hard labor, the whole abdomen then feels even, soft and flabby, but when the womb is contracted, and closes up its orifice after delivery, we then find a swelling like a pear tolerably hard and circumscribed; this evinces us that the womb is much contracted, and that we have no cause to fear too large an hæmorrhage will ensue upon taking away the *placenta*. He was therefore for immediately taking away the *placenta*, if the hæmorrhage shewed that it was prepared for coming out, so that the entirely cleared womb might be the better able to contract itself, and so lessen the flooding, for the blood by being detained runs into clots, and forms large lumps, which
would

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would again require much trouble to remove. Nay if such a large lump was to stop up the orifice of the womb, and the flaccid womb not contract itself, the hidden hæmorrhage continues, and the whole cavity of the womb would be filled with blood, and the poor woman would fall into a violent *syncope*. A sign of this dangerous situation, is if upon touching the abdomen the *uterus* appears large and soft; the only thing to be done in this case, is immediately to thrust your hand into the cavity of the uterus and pull out these grumous clots, so that the womb may contract itself, and close up the open vessels.

The happy delivery mostly depends upon the perfect structure of the pelvis; for, if the passage be too narrow, it is plain that the *fœtus* must pass with great difficulty, nay it will be sometimes impossible. — Though it
may

may, upon the first appearance, seem very extraordinary, yet have there been instances where, unless midwives have been very cautious, the too great breadth of the pelvis may do injury. For, in order that the delivery may be safe, the foetus should, by the efforts of the mother, be protruded through the orifice of the womb, gradually dilated; and the womb be at the same time so supported, as not to endanger its falling down; this may happen if the entrance of the pelvis be too wide, the womb in that case will descend with the foetus, the orifice of the womb being scarce open, as it is not sufficiently stimulated by the pains of delivery, unless the womb be sustained by a proper narrowness of the pelvis. *Deventer*, from long experience knowing that this happens, advises midwives to examine the size of the pelvis when they are sent for
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to women in labor, and not to be too confident, however favorable appearances may be, for there may otherwise be danger of a *prolapsus uteri*. This mischief may be prevented, if the midwife with her hands supports the uterus descending with the foetus, lest it protrude from the pudenda. Thus by artificial means is a prop contrived for the womb, which the too great size of the pelvis would not have allowed. There is no doubt but that the womb, by its own contraction, acts in such a manner as to promote delivery.—*Hemsterbuys*, so long since as the middle of the last century, observes “*quod gravidæ canis uterus, abdomine aperto, suo nixu solo, diaphragmate & musculis abdominalibus non adjuvantibus, foetum excludit.*”—And there are many reasons to believe that the womb of a human creature has the same power. When the pains
of

of delivery are at hand, the skilful midwife, by touching the orifice of the womb, perceives this, though the lying-in woman feels no pain; nay by properly irritating the womb, they excite it to drive its contents out of its cavity. After the death of the mother, the womb has by its own force driven out the foetus: in a living person it often dissolves the placenta, which is left after the child is brought away, and drives it out when dissolved; it also discharges the clotted blood which happens to fill up its cavity, and being very much distended at the time of pregnancy, returns to its former size. Men-midwives have often felt their hands strongly compressed upon putting them into the womb. *Ruyſch* discovered the substance of the uterus to be muscular, and this has been since confirmed by the observation of others.

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Ruyfch seems to have been so much convinced of the strong contraction of the womb (long before he observed the muscular fibres of it) that he was of opinion that the orifice of the uterus being closely shut up, or the head of the foetus stopping it up, the humors contained in the womb might by the Fallopian tubes be forced into the cavity of the abdomen and into the pelvis. Nay, and what is still more remarkable, the womb in a delivery of the most difficult kind, seems, by transfudation as it were, to have forced blood out of its own substance into the cavity of the abdomen, which after death has been there found in large clots. A woman died in consequence of a very hard and difficult labor, the foetus was not excluded; we found the whole anterior surface of the womb covered with clotted blood, which could not be
sepa-

separated from it—being spread out upon a table, it had the appearance of a cake of coagulated blood, of the length of fifteen thumbs in breadth; a foot broad, and three lines in thickness.—Upon the closest examination, no vessel was found ruptured, nor was there one drop of blood to be observed throughout the whole cavity of the abdomen; so that it is very probable that the blood was forced out of the very substance of the womb by transfusion, by the violent and forcible efforts of the poor suffering creature. This may often probably be the case in very difficult labors, so that the worst consequences may be feared to arise from this corrupt extravasated blood, being melted and destroying the viscera contained in the abdomen, for it is hardly credible that such a quantity of clotted blood, so

collected in the abdomen, can be returned into the course of circulation.

Of a bursting of the womb, *Gregoire*, a famous professor of midwifery in Paris some years ago, gives us sixty instances, during the course of thirty years practice; amongst others he relates one where he perceived that the womb being broken at the side of the placenta, the fœtus with its feet touched the diaphragm of its mother.—In another, he took notice that the head of the child and the whole right side, being without the womb, the other parts remained within, so that the fœtus rode as it were with straddling legs upon its mother's womb.

We not only read of the cleft womb, but the abdomen itself has been known to make a very loud crackling noise in a difficult labor, and that the fœtus has come out through this very aperture,

ture, the placenta taken thence, and the viscera of the abdomen seen by all the by-standers. Yet the lying-in woman was perfectly recovered by the simple application of butter, mixed with white sugar, the scar left; much resembled that which is made on a wound made by a blunt needle. This surprising case would scarce be credible, had it not been strongly confirmed by the affidavits made before a magistrate by the eye-witnesses, and the same attested by the midwife and another woman who drew out the placenta; and is now preserved by the secretaries of the Edinburgh society.

The immediate cause of a burst womb, as described by *Levret*, is the kicking of the foetus whilst it is inclosed in too narrow a pelvis, especially too when it happens to be in convulsions, which often is the case just before its death; if the womb, at that

time, should be urged by its own force, together with the efforts of the mother, we are much to fear this accident of the womb may happen. Moreover it is to be considered that the force of the muscles is considerably encreased by convulsive motions— That these misfortunes have happened to the womb is confirmed by the observations of many writers of eminence and authenticity, and are collected by the celebrated *Crantz*, who wrote an admirable treatise *de rupto utero*.

The excellent *Deventer* recommends it strongly to midwives, in case they find by the touch that the pelvis is narrow, not to press their patients to make forcible efforts, whilst they feel the pains of labor, as there will be no haste to accelerate it; the chief hope upon this occasion, is, that the head of the foetus will be insensibly lengthened by a slow and gentle effort, and so be enabled

enabled to pass these streights.—For this reason, no medicine should be administered, nor any art employed to encrease the violence or the frequency of the pains, though this is often insisted upon by the woman in labor as well as by the by-standers.—The bones of the pelvis consist of several different bones, which seem to have a power of mutually receding from each other, in order to give the fœtus a free passage; these are connected by intervening cartilages and ligaments, and have been observed to swell, to soften, and to grow flexible on the approaching delivery, so that they might be better enabled to yield and give way; but then these things should happen gradually, and it is therefore better that the delivery should not be too precipitate, especially if it be the first labor the woman has gone through. The patient should at that time be

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placed in the most convenient position; whether in a bed or chair, so that the *os coccygis* may be able to yield freely, and not be pressed by the weight of the body or of the cloaths. Nay, when the foetus presents its head in the passage out of the pelvis, *Deventer* advises the midwives to press back the *os coccygis* equally on all sides, by introducing the back part of the hand into the vagina, the palm of it bearing upwards, and by these means to extract the foetus which is ready to come away.——

It requires a very nice attention to distinguish a syncope from death in pregnant women—and this more especially where they have in their lifetime been subject to fainting-fits and hysterical disorders, and have been seized with a violent syncope at the time of their pregnancy—for then they turn pale, the face falls, becomes wan
and

and ghastly, the extremities are cold and hard, and both pulse and respiration cease entirely. I well remember having been sent for in great haste to a woman with child in her fourth month; she had been previously so exhausted by a *cholera*, and with sudden and copious evacuations in five hours, that after being seized with convulsions, she fell into a real syncope, so that she was thought to be dead by all about her when I arrived.—I succeeded but very little for the first quarter of an hour, though I ordered her extreme parts to be well rubbed, warm cloaths to be applied, and both her tongue and nostrils to be stimulated with spirituous remedies; her friends even appeared offended at my tampering (as they imagined) with the body; I notwithstanding proceeded, and after a few minutes, I perceived some motion in the carotid arteries; she opened
her

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her eyes, groaned, and gradually came to herself : her exhausted body was by degrees restored by a good nourishing diet, and her strength by cordials, so that she perfectly recovered ; on the seventh month she was delivered of a living child, but so weakly that it lived a few days only.

That most infallible criterion of certain death, the putrefaction of the body, cannot here take place, for the foetus must certainly perish first ; we may sometimes wait two days or longer, before the body begins to smell—under these circumstances we should have recourse to the Cæsarian operation, in order to preserve the child, if possible.—When however upon a very close, careful, and very exact examination, no symptoms of life appear, if no respiration, no motion of the arteries, or warmth is perceived ; if the face was ghastly before death, the eyes
dull

dull and obscured by a viscid covering, if the limbs be stiff, the extremities cold; if the lower jaw be fallen, and remains so, if no sudden and copious evacuation precedes, so that we may suspect a real syncope, if the motion of the humors, now still and discontinued, can be stimulated by no remedies—in that case, if there be not a physical, yet is there at least a moral certainty of death, which may be still farther ascertained, if no signs of sense or motion are observed upon applying fire to the body.

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* **CERTO** certius autumo, says Ruysch, *uterum sese summopere movere in partu, omnesque partus conatus naturales ab utero. fere pendere. Qui conatus post partum non raro adeo vehementer perseverant, ut uterus semet ipsum invertens e corpore procidat. In aliis puerperis, paucis horis a partu, expertus sum, uteri motum adeo fuisse evidentem, ut obstetrices imo & puerperæ sæpius mihi dixerint, alium fœtum adhuc in utero restare."*

The uterus after delivery should be cleared of all the clotted blood, &c.
and

and that as much as possible with the hand, for warm and stimulating medicines would be at this time very injurious to the woman. Warm water may be injected into the womb for that purpose which softens and dissolves, and thus we may reasonably hope that what is retained will by these injections be wasted away, and if it should not immediately have that effect, this advantage may at least arise from it, the putrefaction is thus prevented, and the continuance of the clotted blood, &c. in the womb will be rendered less dangerous; and this injection may be repeated with safety.

Mauriceau has observed that too large evacuations after delivery, are sometimes occasioned by the thick excrements accumulated in the great intestines at the time of pregnancy. He was called to assist a lying-in woman, from whom the *placenta* had been taken away

away a little too roughly, which brought on a violent hæmorrhage which continued five or six days. Although a few emollient clysters had been thrown up, no excrements came away, but the clysters only—: contrary to the opinion of many who were present, he directed a clyster somewhat stronger than what had been administered, which had so good an effect that it filled a whole pot with hard excrements, upon which the swelling of the abdomen, which before was puffed up and much affected with pain, immediately subsided, and the hæmorrhage ceased. Half an ounce of the tincture of cinnamon diluted in six ounces of distilled balm-water or such-like, given in the quantity of a spoonful every two hours, cheers and strengthens the lying-in woman, and yet does no hurt by increasing the motion of the blood.——

Fatal

Fatal consequences are justly to be apprehended if the *lochia* come away but sparingly, and the breasts do not swell at the usual time, especially if there happens the least appearance of a delirium, or that they speak indistinctly. Some are seized with a violent head-ach, and that in so sudden a manner, that they think their head has been struck by some outward blow; this is attended with a tingling of the ears, a common snoring, the *risus sardonicus*, a *subfultus* of the tendons, strong convulsions, and sudden death. Upon opening the skull, a milky matter has been often found lodged in it. *Leuret* says he frequently observed acute diseases of the breast in women after delivery, which he very justly attributed to the same cause; the breasts were flabby, when these disorders were coming on, but when luckily the breasts began to swell again,
a cure

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a cure quickly followed—this metastasis of the milky matter may fall upon other parts of the body, not so easily to be removed.—*Chomel*, a very able physician, in a woman who was in her first lying-in, observed the belly to swell in such a manner, that three weeks after delivery it was almost as big as towards the close of her pregnancy. The navel having broke of its own accord, there issued forth a large quantity of a milky and serous fluid, of a very bad smell, and of a greyish color; two months after this rupture, the patient was perfectly recovered; he was of opinion that this translation of matter was lodged between the duplicature of the peritonæum.—Practical observations confirm that these milky metastases may happen and affect different viscera. In the winter of the year 1746 an epidemical disease was observed in women with child.

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The waters ran from them in their labor, after which the dry, hard, and painful *uterus* began to swell, neither did the *lochia* come away as they ought to have done. The disorder began with a looseness, attended with a pain of the belly, particularly at that place where we find the broad ligaments of the womb, the abdomen was tense, they complained of a head-ach, and were sometimes seized with a cough. On the third or fourth day after delivery the breasts, which then usually begin to swell, grew flaccid, and they died on the fifth or seventh day. This disease for the most part attacked the poor only, especially if they were brought to bed in the hospital. In the month of February this disease was so dangerous, that scarce one out of twenty escaped. Upon opening their bodies after death the milk was found coagulated and adhering to the

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outward surface of the intestines, and a serous fluid swimming in the cavity of the abdomen : a like serum was found in the cavity of the breast of some of them, and in cutting the lungs they discharged a milky but putrid sort of a lymph. Upon closely examining the stomach, intestines and womb, they appeared in a state of inflammation, and grumous blood issued from the dissected vessels of the womb ; we observed in many of them a suppuration of the *ovaria*.

May we not naturally therefore conclude, that such a milky metastasis may produce many disorders, which we alone attribute to a suppression of the *lochia* ; and that too, just as it is carried to this or that part, and with the greater danger in proportion as it is translated to such as are more necessary to the vital functions, and whence it is not so easily again to be removed.

Thus

Thus for example, when it is thrown into the thighs and legs, we have reason to hope it may be brought into such a state as to dispose it to be carried off through the several passages of the body, either by stool, urine, and above all by sweats, by means of fomentations, frictions, &c. But should it fall upon the inside of the scull, death must be the consequence. But it is very evident, that great care must be taken to distinguish between the swelling of the legs and thighs which happens after delivery, and that which happens in women with child from the distended womb compressing the veins, and which subsides spontaneously as soon as the woman is delivered, and the womb also subsides. For the first begins from the thighs and then descends to the lower parts, resists the touch of the finger when it is handled, neither do they leave any remains of

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an impression when we take away the finger; the second begins from the lower parts, ascends gradually, is softer, and more easily yields to the pressure of the fingers, for it is a true anasarca arising from a compression of the veins.

In an inflammation of the womb, the tongue is for the most part rough and as black as if it had been done with ink, and a pain is felt at the extremities of the fingers and nails.

The *uterus* in the time of childbed is more easily irritated than at other times, and will therefore on the slightest stimulus, or passion of the mind be so constricted, as instantly to suppress the *lochia* from which circumstance many bad consequences may be expected: for this reason men of the greatest skill in midwifery when they attend women in labor are apprehensive of danger, if the quickness of the pulse
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which rises at the time of delivery, abates not in an hour after, for then an acute disease usually follows, and an inflammation of the uterus may justly be feared, together with all its terrible consequences.

Women of a delicate constitution and who have been subject to hysteric disorders should never quit their bed till the tenth day after delivery, otherwise they run the risque of a *prolapsus uteri*. Women after they have been safely delivered, and reposed themselves for a few hours, should try to make water, though they feel no inclination to do it, otherwise a troublesome suppression may follow —

Levret has very judiciously divided the diarrhœa of women in childbed into the *critical* and the *symptomatical*. The critical generally begins on the third or fourth day after delivery; the excrements then voided are of a yel-

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lowish or white color, or of both those intermixed, which affords great relief, and is attended with no suppression of the *lochia* or urine, but only with a slight diminution of them: the appetite and sleep remain tolerable, the pulse is regular and the abdomen is soft. The symptomatic diarrhœa on the contrary begins much earlier, and is immediately attended with slimy and black stools, which become serous and sometimes purulent and bloody; the *lochia* are suppressed, the abdomen swells, the strength fails, the appetite is destroyed, sleep is banished, and the urine passes in small quantities, leaving a lateritious sediment; the patient is thirsty, feels an inward heat, while the external parts of the body are cold.

The rules of art forbid us to stop a critical diarrhœa, neither is it safe to suppress the symptomatic, for so would putrefaction be locked up with-

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in the body. Our indication here is to correct the putrefaction already begun with efficacious *antiseptics*, and to restore the sinking strength of the patient; but if any putrefaction mixed with the humors runs off by the vessels and so brings on a weakening flux of the belly, it will more safely go off by urine and sweat. *Hippocrates* after he had advised to relax the body, in a suppression of the *lochia* by an emollient clyster, particularly, adds, “*quod si facile vomuerit, etiam vomitus ciendus; satius autem urinam ciere, & sudorem provocare.*” Gentle diluents which are usually given to women in child-bed in pretty large quantities, promote these discharges tolerably well—sweats however brought on by the warmth of a very hot chamber, bed-cloaths, or heating sudorifics would be very injurious; they should be encouraged only by warm diluting draughts and

the gentle heat of the bed-cloaths. By this means will the fatigue of labor be removed, and the milk fever be carried off.

Sydenham has very prudently advised the too long continuance of the remedies called Uterine; and he once, and once only, prescribed laudanum, either by itself or mixed with uterine medicines, in order to compose the disordered spirits; he discommends also the use of clysters, nor would he have them repeated, if the secundines do not come away after one injection.

Manningham says, “*si suppressis lochiis uterus inflammetur, e brachio potius quam a pede, mittatur sanguis*”—for the motion of the blood through the lower vessels being accelerated, the inflamed womb will suffer the greater violence.—However women in labor should not be too readily bled——.Several symptoms attend lying-in women which often

ten resemble acute disorders, which should not by any means be treated like them.

The first milk which gathers in the breasts after delivery is thin and serous, and very beneficial to the newborn infant, as it yields a thin nourishment, cleanses the stomach and intestines of the filth which they contain, and at the same time gently relaxes the belly.

Nannoni, a famous Italian writer, has observed that if an inflammation seized the cellular part of the breast only and a suppuration ensued, the secretion of milk was not thereby impeded: but if on the contrary it affected the glandular part, in that case the secretion of the milk became greatly lessened, and ceased entirely, in proportion as a greater or less part of the glandular substance was stuffed. He farther observed a slower suppuration

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tion in the glandular than in the cellular substance, and that the former was more in danger from a scirrhus hardness remaining.——I have known hemlock taken both inwardly and outwardly applied, happily dispel such tumors.——*Our publick as well as private practice does not hitherto seem to confirm this.*

This same writer never used unctions, but only, after applying the softest linnen towels, he constantly fomented the breasts with warm water; and at night directed a small poultice of crumbs of bread, milk, &c. Sometimes he applied a mercurial plaister to the hardened tumor.

Of the Diseases of Children,

LEVRET very judiciously advises us neither to bind or cut the navel-string, except the child has first breathed.

But if the new-born child should have a swelled pale face, and should not breathe, or breathe but little, the umbilical cord should be directly cut, though not tied, that a certain quantity of blood may run out, so that the lungs loaded with it, and not as yet dilated by a free inspiration, may be dis-

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disengaged, for there would otherwise be danger of suffocation. As soon however as the child begins to cry, now freely breathing, the navel-string is to be tied.

Tumors in the hind part of the head of children just born are dangerous, for they generally die convulsed; although these swellings in other parts of the head are not attended with the like danger.—The sutures too far distant is also of bad omen; this usually happens either because they came out of the womb too soon, or because the lymph preternaturally collected in the cavity of the skull, begins to form an hydrocephalus.

Women with the thinnest and most diluted milk in their breasts are the fittest nurses for children, more especially in the first months after they are born; when they grow strong, and it should then be thought necessary to
give

give it thicker milk, another nurse may be substituted.—

Moschion says the diet of nurses should be *communiter, sicut omnes homines ut sana esse possit*—certainly a simple diet is best, such as broth and the flesh of young animals, roasted or boiled; vegetables are also of service, ripe fruits, not acid, new-laid eggs, &c. rich fat meats, four things, or salt or aromatics are injurious.

Moschion advises nurses not to give children suck at all times when they cry, but to examine, whether their cloaths be not too tight, or whether there be an excretion of urine, &c. for he says the child wants nourishment *si hypochondria cava sint*. Too brisk a motion of the cradle may cause the milk to curdle in the child's stomach, we should therefore be cautious in this matter; such cradles are best therefore which do not stand on the ground but
are

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are suspended by cords, and moved equally, and so vibrate like a pendulum, for when the motion is insensibly diminished, they return to a state of rest; and continue so—when they stand on the ground, the instant you have done rocking, the child generally awakes.——

Children when weaned, should begin with a more soft, and so proceed to a more solid diet; so that the viscera may be gradually accustomed to the change.

Children generally enjoy a better state of health when their bodies are open, than when they are bound; “*Quibus copiose profluit alvus, says Hippocrates, & belle concoquunt, illi meliore sanitate fruuntur.*” Worms of different kinds are found in different parts of the body.—*Du Verney* gives us the case of a child of five years old, who constantly complained of a violent

lent pain about the root of the nose; it kept its bed three months with a slow fever; then violent convulsions followed; after death, a worm was found in the longitudinal sinus of the brain, about the length of five thumbs breadth, much resembling an earth-worm.

In *Baglivi* we meet with the history of a man of forty years of age, who was suddenly seized with violent pains of his stomach and its neighbouring parts, which lasted eight days; after which he was every half quarter of an hour convulsed both night and day, but which however was soon over, these convulsions were attended with a pale countenance and a privation of strength.—

His body being opened, a worm was found in the cavity of the pericranium, hairy, alive and almost the length of four fingers breadth.—The
poor

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poor wretch before he died, said that he felt as if dogs were gnawing his heart and belly.——

The stomach and bowels abound with a glutinous substance; this slimy matter may afford a tolerable convenient nidus for the eggs of worms, in which they rest themselves, and by which they adhere so closely to the sides of the intestines, as not hardly to be removed from thence by the peristaltic motion of the bowels, nor by the aliments and excrements passing through the cavity of the intestines—and this slimy substance abounds in young subjects, it is for this reason they are supposed to be more frequently troubled with worms—nor is it wonderful, to find these worms sometimes all over covered with this viscid matter.

Smooth worms have been frequently voided by soldiers in camps, when attacked

tacked with the bloody flux, intermitting or remitting fevers. — Doctor *Pringle* observes at the same time, that we are not to imagine these worms were the cause of these disorders, but they exasperated them. —

Worms are divided into three classes, the *round*, the *broad*, and the *ascarides*: the round, called *smooth* also, are oftener found in the intestines than other human worms; they generally equal a writing-pen in thickness, seldom exceed that size, sometimes they are smaller; their length varies, but very rarely exceeds a foot.

The *broad*, which are likewise called belly-worms from their smooth figure, and length, which is often immense: it is also called *vermis solitarius*, because frequently found alone and through the whole length of the intestines. —

Andry has given a full description of

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this worm, and deserves to be consulted upon that subject.

The *ascarides* are, as *Galen* defines them, "*Tenuēs quidem lumbrici in parte præcipue inferiori crassi intestini procreati.*" They are of a smooth figure, very little and pointed at the ends, and sometimes abound in great quantities about the extremity of the *rectum*, and come away with the excrements. They are very restless and extremely lively, and derive their name upon that account from the Greek *ασκαρζειν*, to dance, to leap and to be in constant motion. They are most troublesome towards evening.

People who are troubled with worms swell immediately after eating, because the whole swarm of worms creep towards the upper parts.

Children who are troubled with worms frequently have a cough, this

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is confirmed both by the authority of *Actius* and *Freind*.

A variety of symptoms will prevail, according as the worms irritate or gnaw the various parts. — Worms have been found in the *kidnies* and consumed them, in the *liver* which it destroyed. —

The worms of the intestines feed upon the chyle, and deprive the body of its nourishment; hence those who are subject to these disorders are constantly craving for food, and have a most voracious appetite. — They will also be pale and weak, because as blood should be made of good chyle by the action of the vessels and viscera, from which the other more subtle humors should be separated, it is evident that the red blood must be diminished by the diminution of the chyle which is devoured by these little animals. —

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They will be costive also—for when the disease gains ground, and the quantity of worms is encreased, the worms will consume every thin fluid contained in the intestines, what is thick remains, and as the peristaltic motion is disturbed, it is not easily forced towards the anus; hence the bowels being filled, will dilate; their contracting force diminishes, and the belly will swell more and more—daily observation confirms this in children who are troubled with worms.

Jacquin observes that those who eat a great deal of unripe fruits, and feed upon fish and salt provisions are more liable to be troubled with worms, than those who live upon a better diet—for this reason it is in general remarked that the children of the poor are much more frequently attacked with worms and swelled bellies. The Autumnal season is more favorable to this

this disorder, than any other season of the year—this is confirmed by Hippocrates—*Autumna maxime lumbrici & cardialgia.*

Dr. Alexander Monro among the various symptoms attending this disorder, recites the following — *Dis observavi,* says he, *in illis hominibus pupillam esse dilatatam qui vermibus in ventriculo vel intestinalis laborant, & si non pro signo pathognomico saltem pro syndrome seu symptomatum concursu & optima diagnosi, haberi potest.* It is well known that if the intercostal nerve be cut in a living dog, the eyes grow dim, lose their lustre, shed tears, become hollow, the circumference of the eye is smaller, and the pupil contracted.—He concluded therefore that the intercostal nerve serves to dilate the pupil, and that its action is encreased whenever the nerves of the stomach and bowels

were irritated; this opinion of *Monro's* is well confirmed by what *Mr. Jaquin* wrote to me while he resided in America — where he observes the inhabitants are often troubled with worms, which are usually attended with the following symptoms; *somnolentia, tormina ventris, oculi clari, sed flavescentes, palpebra inferior flavescent, vel cerulescent, convulsiones subito lethales.*

The chief remedies for worms seem to be properly enough divided into three classes. Those of the first class are rough and strong; and it is expected that the peristaltic motion of the intestines is so moved and pressed by them, as to destroy the tender bodies of the worms, so as that they may the more readily be carried out of the body. — The second class are such as may possibly kill and destroy the

the worms by thir intense bad and penetrating smell. — The third are such as though neither hurtful by their roughness or stench have nevertheless been found upon repeated trials to have answered the purpose.

To the first class belongs that celebrated remedy prescribed by Dr. Mead—The *Stann. Ras. & Coral. rub.* — powdered tin may in many ways be destructive to worms, but it chiefly acts by its getting between the coats of the stomach and intestines and the worms, and so prevents their easily adhering to the stomach and bowels, so that when a purge is afterwards exhibited they are easily carried off. —

Garlick is a remedy belonging to the second class—it encreases the motion in the fibres of the bowels, and so prevents the worms from sticking to their sides, and so be the more readily

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conveyed out of the body by purges.

Asa foetida is also a good medicine for the same reason. *Hoffman's* specific in these cases, consisted in pills made of *as. foetid. myrrh croc. & merc. dule.* The *valerian* root fresh powdered belongs to this class of medicines, and so may *crude sulphur.*

Fern root is a surprising and certain remedy, and drives all sorts of worms out of the human body, if we may give credit to the celebrated *Mr. Marchant.*

Amatus gives us a worm powder to which he ascribes great power, viz. *corallin. sem. Santon. an. p. duas, dictamn. alb. bistort. tormentill. & an. p. unam.*—

Boerhaave recommended a composition which was made with saffron and myrrh, on which he poured twenty times the quantity of vinegar from the strongest

strongest wine, in a high chemical vial, he boiled it for twelve hours, by percolation after boiling he separated the vinegar enriched with the strength of the ingredients from the drags, upon the remaining part he poured one half of the former quantity, and boiled it as before; by distilling these two tinctures mixed together over a gentle fire, he thickened it so as to equal the remaining third part; the acid of the vinegar thus became sufficiently concentrated and impregnated with the virtues of the ingredients—he much commended this medicine—when the first passages were overcharged with putrefaction, a foetid bile, thick viscid phlegm, worms and such other disorders as arose from those causes.—
This is to be taken from one to three drachms in mead or small sweet wine, in the morning on an empty stomach,

to be taken for the same purpose as above at

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at least twelve hours after the last meal.—I have known this medicine very frequently exhibited to great advantage.

Vitriolic and steel medicines have also been administered in these cases with success.

Physicians have frequently prescribed bitter medicines to be taken inwardly, and then given clysters of milk, &c.—and yet after all we do not find that bitters are so destructive to worms as it is generally thought.

The dissection of many who have died of worms, evince us that the bowels and stomach, &c. have frequently been eaten through by them.

If the excrements which naturally turn yellow in children, should on a sudden become greenish at the time of their cutting teeth, convulsions are to be expected—because we may conclude from that change of color that
the

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the *commune sensorium* and the whole nervous system are destroyed.

A looseness is of advantage, "*Quibus in dentitione alvus multoties subducitur, illi minus convelluntur quam quibus ita paucies*" is an axiom of Hippocrates, who farther observes that the winter season was best adapted to the cutting of teeth, and that children get over it better *ceteris paribus* at this, than at any other season of the year.

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